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Volume 90 Number 25

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

LIKE Joffre at the Marne, Washington and industry are resolved to give way no longer to deflation but to counter-attack. Big guns like the Reconstruction Finance Corp., supplied with billions, have been drawn up. A bond pool is developing to check further dissipation of security values. A general staff of industry and finance regards price stabilization as precedent to restoring confidence. But occasionally a sniper breaks through, like the institution contending that iron and steel prices must be reduced 31 per cent more to get into line with other commodities. STEEL lays down the barrage (p. 18) that the industry did not profiteer in 1929 and hence has less to liquidate now, since 1923 it has favored the consumer, it earned only 0.4 per cent upon an honest capitalization in 1931, the base of the entire industrial structure should not be further weakened by loose attacks.

Can Buy $16 in Quick Assets for $10

So far has deflation run riot in the iron and steel industry that the common stock of the largest independent iron ore fleet on the Great Lakes, for example, can be purchased for $10 to $12 per share (p. 12), whereas its assets and investments—to say nothing of the fleet and other physical property—are worth at least $16 . . . . In the iron and steel scrap industry, deflation has proceeded to the extent of threatening to dump a large volume of distress material upon an already-disorganized market (p. 12), the sequel being a government inquiry to determine the amount of banking support necessary . . . . The scrap industry, incidentally, is co-operating with the department of commerce in the formation (p. 12) of a standing committee to revise standards.

Tariff Still Lures as Way Out

Great Britain, which took a mild dose of inflation by going off the gold standard, continues her retreat from free trade, increasing the duty on pig iron from 10 to 33 1/3 per cent (p. 58), with a slight offset by reducing the levy on strip and wrought iron. In May, 69 British stacks produced 10,170 tons daily, a fractional decline from April, compared with 25,282 tons daily from 54 stacks in the United States . . . . With one eye on a possible increase on the duty under the flexible provisions of the tariff law, a Democratic senator proposes (p. 13) an official comparison of the cost of producing cast iron pipe at home and abroad.

Pipemaking Methods Still in Evolution

Casting iron pipe, while not without its art, is something apart from the manufacture of seamless steel tubing with a commercially-perfect surface. A method developed by an eastern manufacturer (p. 28) utilizes a special lubricant which not only facilitates the drawing

London goes modern. The Daily Express building masks its steel and concrete frame with horizontal bands of black opaque glass alternating with similar bands of transparent glass

but also protects the surface during heat treatment. . . . Reducing the wall thickness and diameter of steel pipe without an anneal between reductions is possible in a machine (p. 34) which cold swedges and forges in one pass. . . . Large diameter pipe and tanks are being lined with a new olefin polysulphide reaction product (p. 28) which possesses practically all of the characteristics of rubber, yet is immune to solvents.

Automatons Weld Bodies of New Fords

In the welding of Ford bodies any deviation from standard practice cannot be charged up to the human element, for machine type electric welders of special design and completely automatic in operation are employed (p. 23). Flash welding equipment is of unusual proportions and performs spectacularly. In seam welding, such as for gasoline tanks, thryratron tube control permits speeds up to 68 linear inches per minute. . . . Ford continues to dominate automobile production (p. 16), approaching 5000 units a day as other manufacturers taper off. But even Ford is pulling his punch a little. . . . Wheels mounted directly on frames, eliminating axles, is a development (p. 16) which promises the first radical revision of automobile under gear. This is something for manufacturers of axles, springs and shock absorbers to worry about.

What the Country Needs Is—More Smoke

Smoke-washing equipment, to denature soot and sulphuric gases in stack discharges, affords an outlet for carbon steel, steel pipe, lead-lined iron pipe, boiler plate and corrosion-resisting steel (p. 26) and requires from 45 tons for an office building to 500 tons for a centralized heating plant. . . . Without stopping to wash it, the Germans (p. 34) are taking off blast furnace gas and using it to heat a 1250-ton hot metal mixer. . . . An atmosphere of illuminating or other gas is effective in excluding air during the heating and cooling cycles of an electric furnace (p. 34) used by stripmakers for bright annealing coiled stock. . . . Semi-continuous nitriding is effected in a new type of electric furnace (p. 30) at a cost not out of line with continuous equipment.

Congress Debates, but Projects Proceed

Paradoxically, while congress is debating an economy bill to help balance the federal budget, public construction dominates the steel market—if leadership of a 17 per cent market is any prize (p. 39). Not in a year have fabricators been so busy estimating, largely for public projects. . . . No small part of the program is for bridges, in which beauty has survived even depression. In the 1931 most beautiful steel bridge contest of the American Institute of Steel Construction (p. 11), the Bayonne bridge at New York is winner. . . . Fittingly enough, while President Hoover was being renominated at Chicago bids were being opened at Denver on the largest project before the steel industry—52,000 to 60,000 tons of tunnel liner plates (p. 42) for the Hoover dam. . . . Depressed as the steel market may be, processes attract European interest, a group of alien engineers (p. 13) now being on an inspection trip to American mills, showing much interest in continuous equipment.

The VOICE of INDUSTRY

Communications appearing here do not necessarily reflect the opinion of STEEL *or of its editors.*

To the Editor:

On page 16 of your issue of May 9, 1932, a statement was made, with reference to the discussion at a steel session of the recent A. F. A. convention as follows: "Mr. Bull favors the basic process while Mr. Melmoth is partisan to acid practice."

This sentence, standing out by itself, is apt to convey a wrong impression of my point of view. I would like to explain that the reporter's statement was intended to be a brief quotation of the opinion I expressed that, probably if all other factors could be maintained as constant (although this is practically impossible to do) it would be found that basic steel is more fluid than acid steel. I made further reference to the necessity for maintaining the same composition and temperature conditions, in making a comparison. And I remarked in that connection on the impossibility of maintaining the same phosphorus content in commercial practice; and on the fact that phosphorus has a decided influence on fluidity.

My purpose in requesting you to publish this letter is to make clear the fact that I have not stated it as my opinion that basic steel is to be preferred over acid steel for the manufacture of castings or indeed for any other purpose.

Incidentally, Mr. Melmoth's point of view which differed from mine, was stated solely in connection with fluidity comparisons.

ROBERT A. BULL, Director
Electrical Steel Founders' Research Group
Chicago

To the Editor:

I believe a general advance of say 10 per cent on prices of all staple products in the iron and steel line would accomplish wonders.

The experiment has been tried of stimulating trade by lowering of prices, and I believe the consensus of opinion is that it has been a failure.

"Never buy on a falling market" is an old adage.

We all know that prices in many lines are ruinously low, and many are working at a loss and will continue to do so unless something is done to stimulate the demand and to allow a profit.

Advances have been made, and if a general movement along that line is begun, many pigeonholed specifications will see daylight.

WM. BLAKE PATTERSON
President & Treasurer
The Patterson Tool and Supply Co.
Dayton, O.

American Steel & Wire Now Runs Minnesota Steel Plant

MINNESOTA STEEL CO., at Duluth, is now being operated under lease by the American Steel & Wire Co., Cleveland, as one phase of an adjustment of operations planned by W. A. Irvin, new president of the United States Steel Corp. Both companies are subsidiaries of the Steel corporation.

Operation of the Minnesota plant, which is in Morgan Park, a suburb of Duluth, is being continued under the direction of L. C. Reis as general manager. Mr. Reis remains president of the Minnesota company, which will retain its corporate entity but be a holding company only, in much the same manner that the Indiana Steel Co. is the corporate owner of the Illinois Steel Co. plant at Gary, Ind.

At present, the Minnesota plant is operating its wire department, in which it manufactures plain and barbed wire, fencing and nails, and the bar mill, whose range is up to 2 inches square. Output of the bar mill now is largely concrete reinforcing bars. Steel fence posts also are being produced at this plant.

The two blast furnaces, ten basic open-hearth furnaces and the rod mill are not being operated at present, as inventories are being consumed.

The Minnesota plant was erected in 1907 and it was thought at that time that the Steel corporation was embarking upon a program that would make Duluth a large steel producing center. C. F. Blackmer, vice president of the American Steel & Wire Co., Cleveland, was superintendent of the plant from 1921 to 1925, and recently effected the formal transfer.

Reports have been current lately that the National Tube Co., also a Steel corporation subsidiary, was closing its plant at Gary, Ind., and transferring it to Lorain, O. It is stated by Steel corporation officials that the Gary plant has been closed only temporarily. In the meantime such orders as would ordinarily go to Gary are being diverted to Lorain.

Discuss Canadian Steel Before Economic Parley

Toronto, Ont.—A delegation of British steel manufacturers will arrive in Canada, June 29, to confer with Canadian steel interests on questions affecting the trade, preliminary to the Imperial Economic conference.

The recent trend in Canadian policies has been toward building up home industry and supplying whatever deficiency remains from other parts of the British Empire.

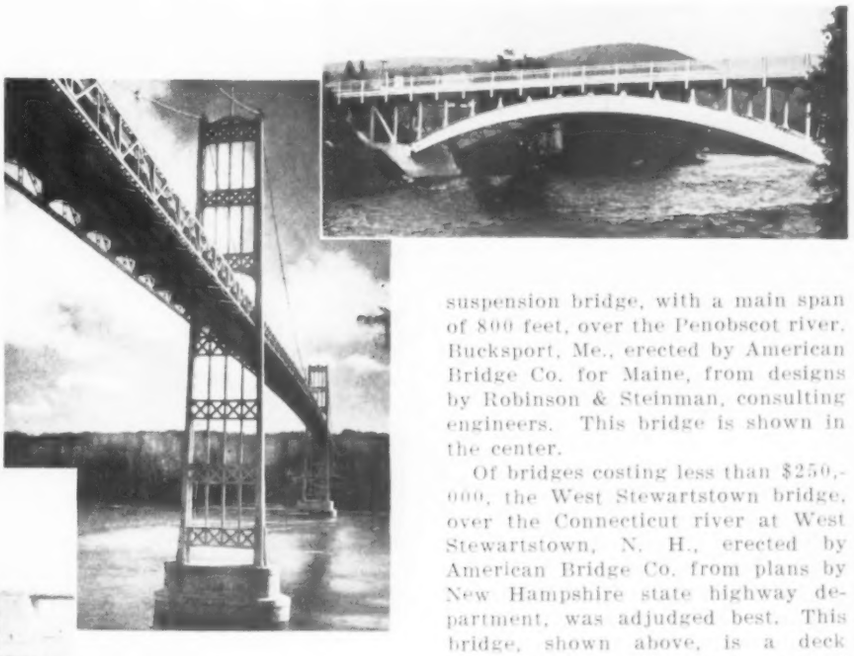
In the British delegation are: A. J. Grant, president, National Federation of Iron and Steel Manufacturers; Sir William Larke, director, National Federation of Iron and Steel Manufacturers; Geoffrey Summers, representing the steel sheet industry; Garvin Stewart, a director of Stewarts & Lloyds Ltd. and representing the tube industry; Fred Smith, representing British Ropes Ltd.; George Smith, representing wire and wire products; Julian Piggott, general manager in London of the British Steel Export association.

Union Mills Aim at Wages

Pittsburgh—Employers of union men in tin mill, black and other thin black mills insist they are being undersold by nonunion operation continuous mills and seek a wage scale from the Amalgamated Association of Iron, Steel and Tin Workers that will enable them to compete. The Amalagamated is resisting any lowering of the wage base. Conferences with employers were to be resumed here June 20. Western Bar Iron association and the Amalgamated meet here June 22.

Most Beautiful Steel Bridges Erected in 1931, Say A. I. S. C. Judges

MOST beautiful steel bridge erected in 1931, costing over $1,000,000, according to the jury in the fourth annual competition by American Institute of Steel Construction, New York, is the Bayonne bridge over the Kill van Kull between Bayonne, N. J., and Staten Island, N. Y. Shown below, it was erected by American Bridge Co. for the Port of New York Authority, designed by O. H. Ammann, chief engineer, port authority. This is an arch bridge having a main span of 1675 feet, longest arch bridge in the world.



Winner in the $250,000 to $1,000,000 class is the Waldo-Hancock suspension bridge, with a main span of 800 feet, over the Penobscot river, Bucksport, Me., erected by American Bridge Co. for Maine, from designs by Robinson & Steinman, consulting engineers. This bridge is shown in the center.

Of bridges costing less than $250,000, the West Stewartstown bridge, over the Connecticut river at West Stewartstown, N. H., erected by American Bridge Co. from plans by New Hampshire state highway department, was adjudged best. This bridge, shown above, is a deck arch structure with a main span of 136 feet.

Check Credit Need Of Scrap Industry

NEW YORK—Government officials, with the aid of the Institute of Scrap Iron and Steel Inc., are checking over the bank credit requirements of scrap dealers for their yard and marketing operations and for replacement of equipment, states Benjamin Schwartz, director-general of the institute.

This may be the prelude to assistance to the scrap industry, possibly through the Reconstruction Finance Corp., to alleviate a situation which will be aggravated if large accumulations of scrap must be marketed to raise cash.

Bankers of the country, through their lack of courage, are helping to prolong the depression, and government aid for the small business man will be necessary unless the banks show some evidence of leadership, Mr. Schwartz believes.

MacMillen Named Head of Scrap Revision Committee

W. W. MacMillen, purchasing agent, National Malleable & Steel Castings Co., Cleveland, is chairman of a standing committee for the revision of scrap iron specifications appointed by the department of commerce. This committee was authorized at the scrap revision conference held in Washington, in March, during the convention of the Institute of Scrap Iron and Steel Inc. Mr. MacMillen represents the National Association of Purchasing Agents.

The committee, in addition to Mr. MacMillen, consists of E. G. Howell, Chicago, representing the Institute; W. W. Kerl'n, Cleveland, representing the Gray Iron institute; Robert F. Rentschler, Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa., representing Steel Founders Society of America; Harry R. DeGroat, Philadelphia, representing the National Association of Waste Material Dealers, and C. E. Tobey, of the Lehigh Valley railroad, representing the American Railway association.

Technical Data Less Sought

For the first time since the depression began, inquiries for technical information for science and industry are falling off, indicating a lessening of industrial and engineering effort, states the Engineering Societies library, New York.

Library readers, however, continue to increase, showing that the times are stimulating the individual engineer to greater intellectual effort.

Steel, in an A-frame, boom and conveyors, converts a Great Lakes bulk freighter into a self-unloader. American Ship Building Co. at Lorain, O., thus transformed the THUNDER BAY QUARRIES *of the Boland & Cornelius fleet, using equipment of Robins Conveying Equipment Co., New York*

Financial News of Steel Industry

INTERLAKE STEAMSHIP CO., Cleveland, has declared a quarterly dividend of 25 cents a share, payable July 1 to record of June 18, continuing the rate of the preceding quarter. Net current assets and investments, not including vessels and other property, equal $16 a share. Current assets at present day values are $3,103,000 over current liabilities.

The company owns an insurance fund, consisting of government securities and cash, totaling $2,255,000. Other securities at cost total $1,758,000, with $1,590,000 receivable in mortgages. Net current assets and investments thus total $8,706,000. Property account of the company, including 49 vessels and other properties, is estimated at $12,000,000 or about $21 a share, compared with a present stock market range of $10 to $12.

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National Steel Corp., Pittsburgh, has declared the regular quarterly dividend of 25 cents payable June 30 to record of June 20.

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Acme Steel Co., Chicago, has declared a quarterly dividend of 25 cents a share on common, payable July 1 under record of June 20, comparable with 30 cents in the previons quarter.

Midvale Low on Tubes

New York—Midvale Co. is low on 32 tons of hollow-forged seamless-steel kingpost tubes, class B steel, rough machined and inside diameter rough bored for Brooklyn and Philadelphia navy yards at $17,987.12, delivered. On 32 tons of the same material for Mare Island and Puget Sound, Titusville Forge division, Titusville, Pa., is low at $19,200, delivered, and $18,240 f.o.b.

Sheet Shipments Held Up In May; Production Down

Shipments of steel sheets in May averaged 3448 net tons daily, according to the National Association of Flat Rolled Steel Manufacturers, Cleveland. This compares with 3488 tons in April. Production in May averaged 3103 tons, a reduction of 8 per cent from April; and sales averaged 2949, a decline of 14 per cent. Total shipments in May were 106,893 tons; production, 96,180 tons; and sales, 91,414 tons.

Approximate finished stock on hand awaiting shipment June 1 was 46,400 tons, compared with 45,021 tons May 1. Total sheet capacity in the United States for May was approximately 547,000 tons, and the capacity on which the association's figures are based is 373,000 tons.

Would Make 2-Way Rates

Boston—New England Freight association has docketed a proposal to amend Boston & Albany railroad I.C.C. 9084, publishing switching charges at Framingham, Pittsfield, Springfield, Ware, Westfield, Winchendon and Worcester, Mass., so that same will apply on traffic received from or delivered to the New Haven and the Boston & Maine railroads; to publish same switching rates in both directions.

Expect New Program in July

New York—No announcement of expansion in activities of the American Iron and Steel institute having been announced following a meeting of directors June 16, it is believed nothing will be made public prior to the meeting July 16. At the

Institute meeting in May, President Schwab forecast a broadening of the scope of the Institute to meet present conditions.

Believe Bethlehem Ore Mines in Chile Safe

New York—Bethlehem Steel Corp. has had no official communication from the new Chilean government regarding its attitude toward the company's extensive iron ore properties in that country. However, the latest press dispatches indicate that the new government will not molest the private properties of Chileans or foreigners.

The Bethlehem properties are known as the Tofo Iron Ore Mines and are located near Cruz Grande in the province of Coquimbo. They are operated under a long term lease and are equipped to produce 1,500,000 tons of iron ore a year.

None of the company's fleet of ore carriers is in Chilean ports, nor are any in transit, according to company advices.

The Business Week In Washington

A RESOLUTION by Senator Costigan, Democrat, of Colorado, directs the tariff commission to investigate the difference in cost of production, at home and abroad, of cast iron pipe. The resolution has been referred to the finance committee.

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Collectors of customs have been notified to suspend liquidation of entries of dead burned magnesite at all ports pending a judicial determination of classification. Last July the customs bureau published a classification and rate of duty, following which domestic producers filed notice it desired to protest. Later entries were liquidated, causing a protest leading to the new order.

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House bill 9921 requiring general contractors on public building projects to name their subcontractors, to prevent bid peddling, has been killed at this session, three objections having stricken it off the consent calendar in the house.

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Senator Davis, of Pennsylvania, has called attention of the senate to the fact that imports of steel in 1931 cost 237,130 American steelworkers one week's full employment. He was quoting an estimate of the American Steel Warehouse association, supplied by C. S. Seamans, sales manager, Bittenbender Co., Scranton, Pa.

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The tariff commission has ordered investigations into the cost of manufacturing drawing instruments, optical instruments and food chopping machines, under the flexible provision of the tariff law.

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Secretary Mills agrees in principle with the proposal of the war policies commission that war profits should be turned back to the treasury, but states that the law could not be enacted now.

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Interstate commerce commission has tentatively placed a valuation of $174,000,000 upon the Pullman Co., Chicago.

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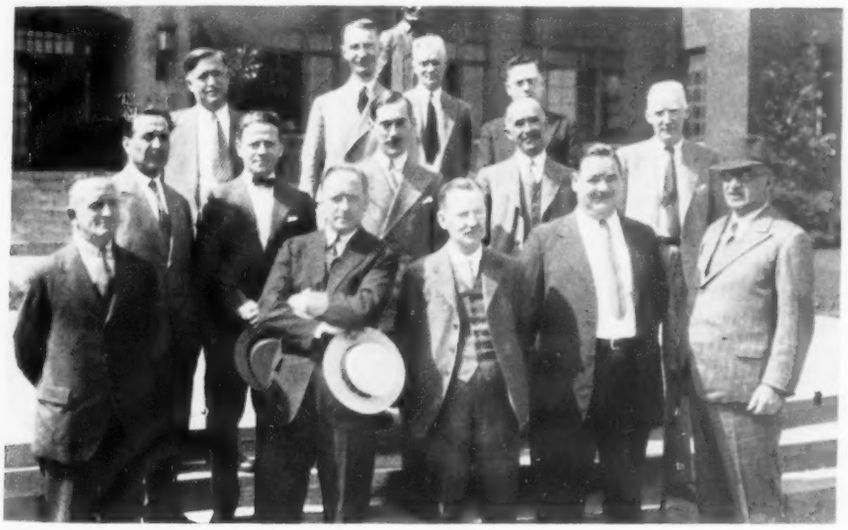
Truscon Steel Co., Youngstown, O., is complaining before the interstate commerce commission against freight rates on reinforcing bars and metal lath from Youngstown to Eagle Pass, Tex.

When European Engineers Visited Middletown



EUROPEAN steel plant managers and engineers, accompanying A. T. Kathner, of Kathner & Damiron, consulting engineers, Paris, on a tour of American steelworks, made an inspection trip through plants and research laboratories of the American Rolling Mill Co., Middletown, O., June 14. These visitors, with Rolling Mill company officials, are shown above.

Front row left to right: C. H. Middleton, John Summers & Sons Ltd., Shotton, Chester, England; E. A. Emerson, Armco International Corp., Middletown; H. T. Hildage, United Steel Corp., Sheffield, England; S. E. Graeff, American Rolling Mill Co., Middletown; E. Peter Jones, John Summers & Sons, Ltd., Shotton, Chester, England.

Middle row, left to right: A. A. Bonnett, Chatillion Commentry & Nouves Maisons, Montlucon, France; R. A. Solborg, Armco International Corp., Paris; J. G. Guyot, Chatillion Commentry & Nouves Maisons, Montlucon, France; Mr. Kathner; J. B. Tytus, American Rolling Mill Co., Middletown.

Back row, left to right: Bennett Chapple, American Rolling Mill Co., Middletown; E. J. Houbaer, S. A. Cockerill, Sersing, Belgium; William Stringham, American Rolling Mill Co., Middletown; G. D. Tranter, American Rolling Mill Co., Middletown.

French Semifinished in Steady Annual Decline

Washington.—French production of semifinished iron and steel products for the open market has been steadily declining since 1928 due to reduced foreign sales and increasing tendency of larger producers to engage in the manufacture of more highly finished products, according to a bulletin on the French iron and steel industry recently issued by the department of commerce.

Domestic output of these semiproducts declined to 1,329,000 tons in 1931, it is stated, compared with 1,584,000 tons in 1930, 1,757,000 tons in 1929 and 1,957,000 tons in 1928.

Boiler Plant Speeds Up

Key Boiler & Equipment Co., St. Louis, has expanded its working schedule because of recent orders from oil refineries. It will maintain the new rate for a few weeks.

Industrial Men in the Day's News

C. W. Heppenstall, President, Forging Manufacturers' Association, New York

HE represents the third generation of a family that has been identified with the steel industry.

SINCE 1920 he has been president of the Heppenstall Co., maker of die blocks and shear knives.

HE has taken an active interest in the work of technical organizations and is a member of several engineering groups.

C. W. HEPPENSTALL, president of the Heppenstall Co., Pittsburgh, who is now president of the Forging Manufacturers' asociation, as noted in STEEL Feb. 8, represents the third generation of that family which has been identified with the steel industry.

His grandfather, George Heppenstall, was a converter in Peter Stubbs Co., Sheffield, England. His father, Sam Heppenstall, was a roller in Tinsley Co., also in Sheffield. Both of these companies were producers of high-grade tool steel. Sam Heppenstall lived to see forged steel products manufactured in Pittsburgh by the Heppenstall Co. shipped to users in Sheffield.

C. W. Heppenstall was born in Philadelphia June 12, 1872. When he was 5 years old the family moved to Pittsburgh, and there he received his elementary education. He attended the Normal school at Indiana, Pa., and Pennsylvania State college. During vacations he was employed by Howe, Brown & Co., Pittsburgh, which company later became part of the Crucible Steel Co. of America.

In 1893, C. W. Heppenstall was employed by the Thetewey Mfg. Co., Pittsburgh, manufacturer of rolling mill machinery. His first employment was as office boy, but his eventual progress in the company was rapid and five years later he was made general manager.

This company was reorganized through the efforts of Sam Heppenstall and for a time was known as the Pittsburgh Shear Knife & Machine Co., later becoming the Heppenstall Forge & Knife Co. and more recently the Heppenstall Co. Under C. W. Heppenstall's management, the company has developed into one of the country's leading forge plants and today is the largest producer of die blocks and shear knives in the United States.

In 1920, his father became chairman of the board of the Heppenstall Co., and C. W. Heppenstall assumed the presidency, which office he now holds. He takes pride in the fact that another generation of Heppenstalls—his two sons—also is identified in executive capacities with the company.

Mr. Heppenstall has taken an active interest in the work of technical organizations and is a member of the American Iron and Steel institute, American Institute of Mining and Metallurgical Engineers, American Society for Steel Treating, Army Ordnance association, British Iron and Steel institute, Engineers' Society of Western Pennsylvania and the Society of Automotive Engineers.

He divides his recreational interests between golf and power boating, being a member of the Pittsburgh Country club, Pittsburgh, the Centre Hills Country club, State College, Pa., and the Miles River Yacht club, St. Michaels, Md., where he engages in yachting. In addition, he belongs to the Duquesne club and Pittsburgh Athletic association, both of Pittsburgh.

WILLIAM L. DITGES, formerly vice president in charge of engineering, Mackintosh-Hemphill Co., Pittsburgh, is now affiliated with the Pittsburgh Steel Foundry Co., Glassport, Pa., as vice president.

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P. A. Patterson, for many years identified with the McCrosky Tool Corp., Meadville, Pa., has been appointed eastern Pennsylvania representative for these companies, and in addition will handle the sale of products of the Rickert-Shafer Co., with headquarters in Philadelphia.

□ □ □

John J. Batterman, formerly vice president and treasurer, Gabriel Co., manufacturer of automotive equipment, Cleveland, has been elected president. David Benjamin, formerly secretary, now is vice president, and Harry D. Kinnear is vice president in charge of manufacturers' sales.

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W. W. MacMillen, purchasing agent, National Malleable & Steel Castings Co., Cleveland, was officially presented with the Institute of Scrap Iron and Steel award for 1931 at the banquet of the National Association of Purchasing Agents at De-

troit, June 6. Mr. MacMillen received the award as the individual who made the outstandiing contribution to the progress and welfare of the scrap industry during 1931.

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Harry T. Gilbert, formerly vice president of the Republic Steel Corp., Youngstown, O., and recently associated with the Midland Steel Products Co., Cleveland, has resigned.

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William E. Wickenden, president, Case School of Applied Science, Cleveland, has been elected vice president of the Cleveland Engineering society.

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D. V. Sherlock, for the past ten years superintendent of the Strong Steel Foundry Co., Buffalo, is now affiliated with the Union Steel Casting Co., Pittsburgh, as general superintendent.

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J. M. Lind, of Spang, Chalfant & Co. Inc., Pittsburgh, and A. H. Zierckel, Pittsburgh Steel Co., Pittsburgh, have been elected to the executive committee of the Traffic and Transport Association of Pittsburgh.

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F. L. Stone, general sales manager, and Paul C. Van Zandt, assistant to the president in connection with operations and engineering, have taken elected vice presidents of the Universal Atlas Cement Co., Chicago, a subsidiary of the United States Steel Corp.

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P. W. Bowers, formerly in charge of the New York offices of the Perry-Buxton-Doane Co. Inc., dealer in steel and iron scrap, has organized a company of his own—P. W. Bowers & Co.—with headquarters in the Chrysler building, New York.

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A. W. Robertson, chairman of the board, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has been elected chairman of the board of trustees of Allegheny college, Meadville, Pa. Mr. Robertson is a graduate of the college, class of 1906, and has served as a trustee for many years.

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W. L. Hayes, manager of wire mills, Cleveland district, of the American Steel & Wire Co., retired June 1 under the retirement policy of the United States Steel Corp. The office has been abolished and the work absorbed by the vice president in charge of operations.

G. H. Peters has been named assistant to the vice president.

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G. T. Williams, of the Indiana Harbor, Ind., plant of the Youngstown Sheet & Tube Co., has been elected president of the Blast Furnace and Coke Oven association of the Chicago district. E. J. Gardner, Inland Steel Co., is vice president, and W. H. Johnson, also of Inland, secretary-treasurer.

LEVI HENRY BURKHART, 21, was awarded first prize in the annual contest for steel foundry apprentices conducted by the American Foundrymen's association at the recent convention in Detroit. Mr. Burkhart, employed in the foundry department of the Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa., as apprentice molder, produced the finest specimen crankshaft exhibited, and competed not only with fellow open-hearth foundrymen but also with electric furnace foundrymen. Pattern was supplied by the Foundrymen's association and although all heads and gates were not allowed to be removed from the casting and no chipping was permitted, thorough inspection was facilitated by sandblasting. Mr. Burkhart was given no assistance in preparation or setup of his mold which, incidentally, was poured from a large 25-ton ladle.

Obituaries

DONALD M. EDDY, 42, vice president, Hanna Furnace Corp., Buffalo, died June 10 as a result of a fall. A graduate of Yale university, he was early associated with the Hydraulic Pressed Steel Corp., Cleveland, joining M. A. Hanna & Co. in 1918. On formation of the National Steel Corp., Mr. Eddy became identified with its Hanna Furnace Corp. division at Buffalo.

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James T. Warner, 59, secretary-treasurer of the Whitehead & Kales Co., Detroit, died recently.

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James Laubie, employed in the offices of the Carnegie Steel Co., Pittsburgh, for the past 46 years, died at Brookline, Pa., June 13.

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William M. Scudder, 73, president, E. E. Souther Iron Co., St. Louis, died June 3.

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William C. Redfield, 74, who was secretary of commerce under President Wilson and had many contacts with the iron and steel industry during the World war, died at Brooklyn, N. Y., June 13.

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Frederick M. Steele, formerly identified with the American Bridge Co. and Standard Forging Co., both of Chicago, died June 7 at Highland Park, Ill. He was 81.

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Royal C. Vilas, 56, son of the founder and former chairman of the Pyle National Co., Chicago, manufacturer of railroad specialties, died at Chicago, June 9.

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T. J. Thomsen, 76, founder of the Thomsen Foundry Co., Duluth, and credited with being the first man to make an iron casting at Superior, Wis., died June 2. Before going to Duluth in 1887 he worked at his trade in Chicago. In 1900 he founded his own company, now operated by L. H. Syck, his son-in-law.

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Thomas D. Russell, 69, vice president, Morgan Engineering Co., Alliance, O., died June 11 while on a business trip to Pittsburgh. Since 1886 he had been associated with the Morgan company, becoming treasurer in 1901 and vice president in 1929. Educated in the public schools of Massillon, O., he was graduated from Drake university, Des Moines, Iowa. He was a member of the American Iron and Steel institute.

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James R. Morash, 52, president and general manager, General Refrigeration Co., Beloit, Wis., manufacturing heavy duty refrigeration units, died June 9. He was a native of Nova Scotia and came to the United States in 1896. For 27 years he was associated with the General Electric Co. at Lynn, Mass., and later at Chicago. He became head of the Beloit concern when it was reorganized out of the Lipman Refrigeration Co. in 1923.

To Meet at Atlantic City

National Hardware association of the United States, of which George A. Fernley, 505 Arch street, Philadelphia, is secretary-treasurer, is announcing its thirty-eighth annual convention to be held at Atlantic City, N. J., Oct. 17-20.

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MIRRORS OF MOTORDOM

DETROIT

OTHER parts of the automobile have undergone radical transformation in the past few years, but the running gear, from the frame down, being largely out of sight has also been largely out of mind.

Tires have been improved from clincher to demountable and from fabric to cord to balloon. Brakes have been installed on front axles. Spring covers are now standard on many lines.

But compared with the gamut of color, streamlining of bodies, refinement of power plants and the present wave of gadgetry, the under gear has been the neglected child of the industry. In fact, the tendency in fender design has been to mask it, Graham having gone farthest in this direction.

In some measure, wheels have escaped the revising hand of the engineer, because of the prime necessity of being round, and of the stylist, because of exposure to road conditions. The process of evolution in wheels has been one of shrinking diameters. Each successive type of tire has been larger, necessitating a corresponding reduction in the wheel itself.

Small Disk Gain for Steel

With the extreme low-pressure or doughnut type of balloon tire finding increasing favor, wheel diameters once more are contracting. For wheels on which this type of tire is mounted, hot-rolled strip from 12 to 13½ inches wide and 9/64 to 5/32-inch thick is being purchased. The rims are formed on this blank.

For steel, this kind of wheel probably is an asset. Where this disk wheel supplants the wire or steel spoke wheel it will be a standoff, but the passing of the wood artillery type wheel will cost the steel industry nothing.

There will be danger, however, if manufacturers of these low-pressure balloons realize their dream of entirely supplanting springs and shock absorbers and doing all of the cushioning with their product. Already makers of steering gears are redesigning their product to meet the new conditions created by super-balloons.

Mount Wheels on Frame

Another development in this direction is the design of a wheel which is attached to the frame by means of a block of rubber. Road tests on a car with the wheels thus directly mounted on the frame are in progress, and the sponsor is one of the largest and most responsible companies supplying material to the automobile industry. Great secrecy shrouds this design, and nothing is available concerning the means of propulsion.

An automobile manufacturer also is doing experimental work on a car with wheels mounted directly on the frame.

Noteworthy improvement in brake drum material also is in process. The sequel to free wheeling is more intensive braking, requiring at least a 30 per cent increase in braking surface and material that can withstand the consequent higher temperatures generated. Fire checking, resulting from the splashing of hot drums on rainy days, has been one bane.

Molybdenum has scored some success. One manufacturer of high-price cars is employing an alloy which, after duplexing, analyzes 2.30 to 2.70 total carbon, 2.25 to 2.75 silicon and 0.50 molybdenum. The physical properties are 50,000 to 55,000 pounds tensile, 6000 to 6500 pounds transverse and 225 to 262 brinell.

Incidentally, molybdenum is being used more widely in clutch plates and camshafts, and experiments with alloy crankshafts and camshafts are under way. A recent order for 10,000 of such alloy camshafts is reported.

On the new Ford four and eight, it will be recalled, the front brake drum is a special alloy malleable casting and the rear drum is a chrome-nickel gray iron alloy. Both drums are designed sufficiently generous for free wheeling or the equivalent, and the offering of an automatic declutching device as optional equipment is a possibility.

Incidentally, the Ford experience with alloys has not been entirely happy. Some years ago, on Model T, plain carbon crankshafts were replaced with shafts running 1 per cent in chrome and 0.70 in manganese, testing 300 brinell. A number of failures from fatigue in service were reported, and when plain carbon shafts of the same manganese were substituted failures ceased.

June Output Hopes Fall

With June two thirds gone, estimates of automobile production are being revised downward radically. If this month's assemblies of passenger cars and trucks in the United States exceed the estimated 185,970 for May it will be by a very small margin, whereas a week or ten days ago it was believed that well over 200,000 units would be made.

Ford, still on the under side of 5000 units daily, 5 days a week, can be counted upon for approximately 100,000 units this month. False hopes may be built on Ford unless it is realized that the output of 72,140 units in May was "world production"—and foreign assemblies of Ford are of little moment to the American steel industry.

Except Ford, the industry is retrenching radically. Many manufacturers have built up inventories and may be said to have virtually completed their run on 1932 models. Daily production schedules are

meaningless. Steelmakers have on their books orders placed in January and never released.

The new federal taxes effective June 21 have moved a few cars off dealers' floors but have not spurred production. The increased activity in tires and accessories is discouraging to the extent that it indicates longer use of cars that normally would be traded in at this time.

The American Automobile association estimates that the new taxes on autos, accessories, gasoline and oil will average $50.32 per year per owner. The new levies are expected to produce annually $32,000,000 on new automobiles, $7,000,000 on parts and accessories, $33,000,000 on oil and $150,000,000 on gasoline.

Here and There in Industry

WICKWIRE SPENCER STEEL CO., New York, is installing at its Palmer, Mass., mill facilities for the manufacture of preformed wire rope in all commercial sizes and grades. This will be in addition to its present otherwise complete line of wire rope. It will market its preformed wire rope under the trade name of Wisscolay.

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Standard Steel Rail Co., St. Louis, dealer in relaying rails and scrap, has moved its offices from 915 Olive street to 701 St. Louis Mart building.

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American Pipe & Steel Corp. Ltd., Alhambra, Calif., has moved its Los Angeles office to its new office building located at the plant, 230 Date street, Alhambra.

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Ray Burner Co., San Francisco, has appointed the Case Hardening Service Co., 2281 Scranton road, Cleveland, its sales representative in Cleveland and vicinity.

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Bethlehem Foundry & Machine Co., Bethlehem, Pa., has closed a five-year contract with the Oil Electric Engineering Corp., Minneapolis, to build the latter's equipment at Bethlehem.

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Clouse Machine Products Co., Indianapolis, has taken over part of the plant of the Marmon Motor Car Co. R. M. Clouse is head of the company, which specializes in tool and machine products and gears.

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Poole Foundry & Machine Co., Baltimore, has appointed the Ladd Equipment Co., First National Bank building, Pittsburgh, representative for its all-metal flexible coupling in the Pittsburgh, Mahoning valley and West Virginia District.

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Allen-Bradley Co., Milwaukee, has appointed Walter A. Black district manager of its office at 942 Prospect avenue, Cleveland. He formerly was chief engineer of the Indianapolis works of Fairbanks, Morse & Co. John B. Vogel has been appointed district representative of the Allen-Bradley Co., with offices at 41 Grandville avenue, Grand Rapids, Mich.

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Magnetic Mfg. Co., Milwaukee, has appointed J. E. Harlow, 7 West Sixth street, Cincinnati, as its representative in Cincinnati territory. He will sell, install and service the entire line of separators, clutches and conveyor rolls made by the company.

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Detroit Seamless Tubes Co., Detroit, C. H. Hobbs president, has added several firms to its list of mill distributors of its bushing line. The additions include: Topping Bros., New York; Lewis H. Tracy Co., Boston; Charles C. Lewis Co., Springfield, Mass.; E. C. Church Co., Providence, R. I.

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American Car & Foundry Motors Co., Detroit and Philadelphia, William H. Woodin president, is transferring its bus-manufacturing activities from Detroit to the plant of the J. G. Brill Co. at Philadelphia. Combining manufacturing of the motors division and the Brill division is done to effect economies.

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Lennox Furnace Co.,Syracuse, N. Y., has sold a controlling interest in the Lennox Furnace Co. of Canada Ltd. to a group headed by L. L. Anthes, of the Anthes Foundry Co., 64 Jefferson avenue, Toronto, Ont., The new owners plans to establish a plant at St. Catherines, Ont., to manufacture furnaces for the Canadian trade.

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Chrysler Corp. has purchased from the Surface Combustion Corp., Toledo, O., an additional furnace employing the Eutectrol process of continuous gas carburizing, for installation in its Detroit plant, to be used for carburizing cam shafts. Two similar furnaces are nearly ready for operation at the plant at Newcastle, Ind.

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Advance Pressure Castings Inc. has been organized by a group of executives formerly connected with the Allied Die Casting Corp., with a plant at 34-48 North Fifteenth street, Brooklyn, N. Y. A. F. Waltz, formerly president and general manager of the Allied Die Casting Corp., heads the new organization as president. W. Jensen, former chief engineer with the Allied Corp., and prior to that with the Newton Die Casting Co. as chief engineer and plant superintendent, is works manager. Others formerly connected with the Allied organization now with the Advance Pressure Castings Inc. are Alfred Rusch, R. Zaleski, F. Dertinger and H. Bonzak.

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Foster Wheeler Corp., New York, has appointed Consolidated Steel Corp. Ltd., Los Angeles, its exclusive sales and manufacturing representative on the Pacific coast, including California, Washington, Oregon, Nevada, Utah, Arizona and New Mexico. The Consolidated company will handle the entire Foster Wheeler line, including power plant, marine, oil refinery and gasoline plant equipment. C. L. Froding and R. D. Spear, former sales representatives at San Francisco, and M. J. Gavin, Los Angeles, have joined the Consolidated staff at these places. A complete engineering organization will be continued at Los Angeles, under direction of W. L. Rifenberick, in former offices in the Petroleum Securities building. Most of the Foster Wheeler equipment for the Pacific coast will be manufactured by the Consolidated company in its new shops at Slauson and Eastern avenues, Los Angeles.

Lancaster Low on Pipe

Philadelphia — Lancaster Iron Works Inc., Lancaster, Pa., is low bidder on 555 lengths of shore discharge pipe, each length 16 feet 3 inches long, for the United States engineer office, Philadelphia, with a bid of $24.50 per length, delivered.

April Employment Lower

Washington—Both employment and payrolls in the iron and steel and allied industries decreased in April from April, 1931. In point of employment the drop from a year ago was 2.8 per cent and in payrolls, 56.3 per cent.

To Standardize Reels

Washington—A general conference to consider simplification of metal spools and reels was to be held June 20 at room 1101, Engineering Societies building, 29 West Thirty-ninth street, New York.

Closes Manganese Mines

United States Steel Corp. has suspended operation of its manganese mines in the state of Minas Geraes in Brazil.

EDITORIAL

Juggled Figures Lead to Queer Price Logic

"Pointing out that the average price of steel has declined only 13.5 per cent since the 1929 peak, compared with a decline of 32.1 per cent in the average price of all commodities, the Alexander Hamilton Institute estimates that a further reduction of 31 per cent in steel prices is necessary to attract progress and revive production."

—News item based on bulletin issued by Alexander Hamilton Institute.

FOLLOWING the appearance of the above in a number of newspapers, protests against its injustice have been received by STEEL, not only from steelmakers but also from distributors and consumers. It is felt that the statement is misleading as to fact, absurd as to logic and malicious in its release at a time when every person identified with industry is praying for a halt in the downward trend of prices.

The statement that "the average price of steel has declined only 13.5 per cent since the 1929 peak compared with a decline of 32.1 per cent in the average price of all commodities" is based on indexes for which 1926=100. On this basis, the following is more accurate:

	1926 = 100 All Commodities Index (U. S. Bureau of Labor Statistics)	Iron and Steel Prices (STEEL's Composite)
1929	96.5	95.2
1930	86.4	87.5
1931	73.0	81.3
April, 1932	65.5	77.6
Decline from 1929	32.2 per cent	18.5 per cent

However, it is unfair to make deductions from the decline since 1929. Iron and steel prices have been declining since 1923, whereas the average of all commodity prices resisted marked recession until 1929, after which it suffered a precipitous drop. On the basis of prices in 1923=100, the comparison is as follows:

	1923 = 100 All Commodities Index (U. S. Bureau of Labor Statistics)	Iron and Steel Prices (STEEL's Composite)
1923	100.0	100.0
1924	97.5	91.7
1925	102.8	87.2
1926	99.4	86.0
1927	94.8	81.6
1928	97.1	79.7
1929	95.9	81.8
1930	85.8	75.2
1931	72.5	69.9
April, 1932	65.1	66.7
Decline from 1923	34.9	33.3

The point to be emphasized here is that by choosing a favorable year for parity, one can easily prove statistically that the price of any commodity is far out of line with "all commodity" prices. In choosing 1926 for parity and measuring the decline from 1929 (when steel prices were relatively low) the author of the offensive statement carelessly or with intent selected a statistical procedure which shows iron and steel prices at their greatest disadvantage. The effort might better be directed toward proving statistically that the prices of scores of commodities are far below the "all commodity" average and should be increased to that level.

The statement that "a further reduction of 31 per cent in steel prices is necessary to attract progress and revive production" cannot be supported by experience. If it were true, why is it that the demand for crude rubber, the price of which has dropped from a peak of 215.3 to 6.6 or 96 per cent, has not increased by leaps and bounds? If the world is waiting for bargain prices, why is it that scores of materials that have been reduced from 50 to 80 per cent still are as a drug on the market?

Returning Confidence, Not Lower Prices, Is Key to Recovery

Deflation of inflated prices is a necessary prelude to recovery, but today the process has gone beyond reasonable bounds. Few competent authorities are now advocating a further continuation of liquidation. The entire strength of the agencies set up by the government and business to combat the depression is definitely committed to a policy of controlled mild inflation. The halting and reversing of the downward trend of prices are the primary objectives of every important national movement launched in the last six months.

The depression has gone so far and deflation has been so wild that it is foolhardy to predict the course of prices for the near future. If past experience repeats itself the turn in iron and steel prices will lag behind the turn in demand. In 1921 the purchase of steel in greater volume began in August and September, but prices continued to slip until March in 1922.

Steel prices are not too high; they are too low. But even if it could be established that they are too high, no useful purpose would be served in lowering them at this time.

Do the officers of the business institute really believe that a cut of 31 per cent in the price of business courses or of any single service or commodity would "attract progress or revive production?"

THE BUSINESS TREND

Improved Financial Situation Is Favorable Sign

REASSURING in contrast to the uncertain factors surrounding business is the continued evidence that the financial structure of the country is improving daily. The outflow of gold is diminishing, and there is cause for rejoicing that nearly all of the foreign holdings have been withdrawn. Liquidation of bank held securities continues, but the process is believed to be nearing completion. Bank deposits are increasing and while loans have not expanded enough to be considered significant, the trend probably is upward.

The improvement in finances was accomplished with the aid of the federal reserve system, the Reconstruction Finance Corp. and several constructive acts of congress, but in spite of numerous retarding influences. Among the latter were the delay of congress in balancing the budget and its indecision on economy programs. The cowardly attitude of the house on the bonus also is a disconcerting factor.

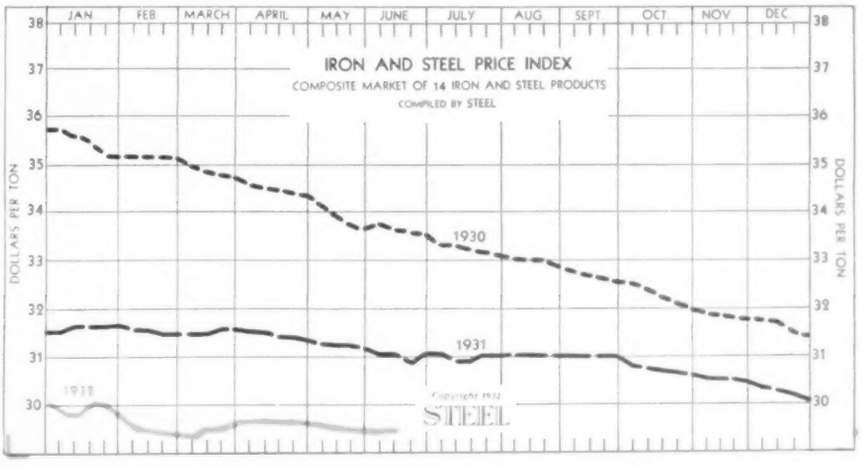
With the credit situation in hand, the next step is to transfer the benefits of stabilized finance to commerce and industry. The agencies best fitted for this task are the Reconstruction Finance Corp. and the American Securities Investing Corp. They will be aided by the banker-industrial executive committees formed in reserve board districts.

While their work is in progress during the summer, international problems probably again will be interjected into the American situation. This country cannot escape the influence of the Geneva, Lausanne and Ottawa conferences. If the discussions at Geneva on disarmament and at Lausanne on reparations are even moderately successful in creating a close bond of understanding on these important topics, the road to recovery in the United States and the principal European countries will be made easier.

Industrial Activity Wilts in Absence of Positive Signs of Recovery

Meantime industry has slipped to lower levels. Steelworks operations have fallen through the December bottom. The automobile industry's mild spurt is showing signs of a let-down. Demand for structural shapes, mostly for public projects, has been in greater volume during the past month than at any time in a year. But the absence of buying from other large consuming groups has more than offset the effect of the purchases for automobiles and buildings.

No change has occurred in the trend of commodity prices. General barometers continue to decline. Quotations of finished steel remain firm in the face of extremely low demand STEEL's finished steel composite has stood at $47.62 for a month.

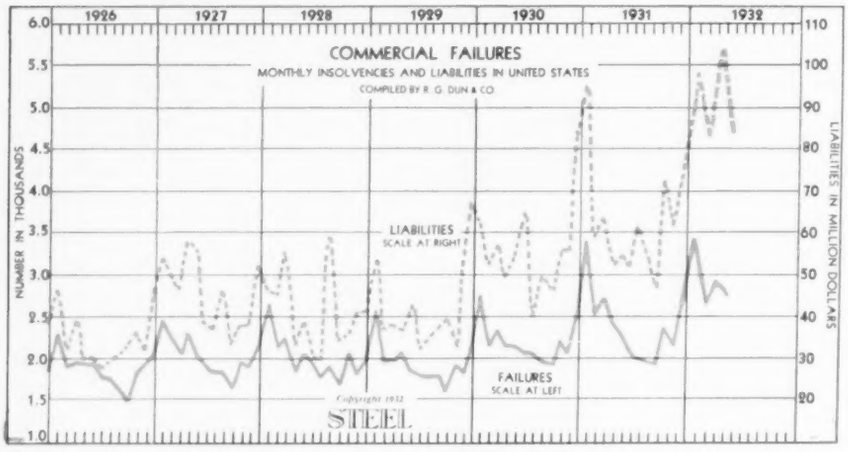


1932

June 11	$29.56
June 4	29.56
May 28	29.57
May 21	29.58
May 14	29.64
May 7	29.68

1931

June 10	$31.03
June 3	31.03
May 27	31.33
May 20	31.37
May 13	31.37
May 6	31.40



Liabilities

May, 1932	$83,763,521
April, 1932	101,068,693
May, 1931	53,371,212

Number

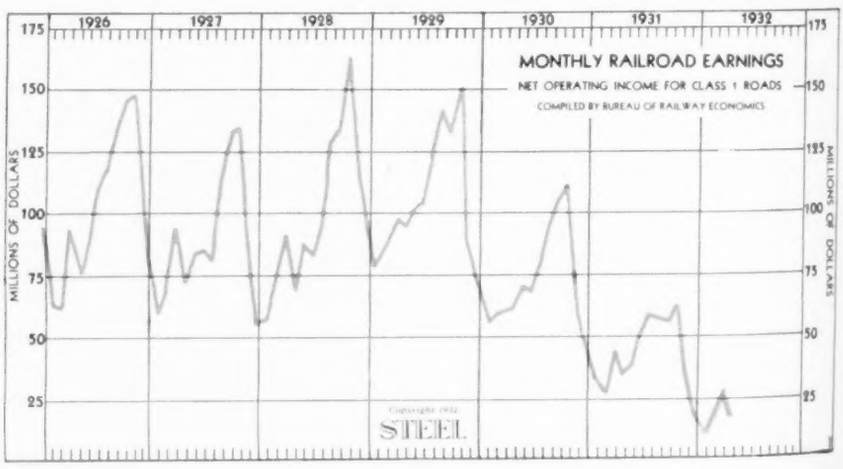
May, 1932	2,788
April, 1932	2,816
May, 1931	2,248

Commercial Failures Are Fewer; Insolvencies Lowest This Year

Commercial failures during May continue to maintain their high trend, despite an improvement in both number and liabilities. According to statistics compiled by R. G. Dun & Co. the number of insolvencies totaled 2,788, a decrease of 1.0 per cent from the previous month when the number of defaults totaled 2,816. This is 19.4 per cent below the high point of the year when 3,458 were recorded for January. While liabilities remain at a high level, they are the lowest reported this year. The total was $83,763,521, a decline of 17.1 per cent under the $101,068,693 for April. For this year to date 14,745 failures have been recorded, involving a total of $460,352,836.

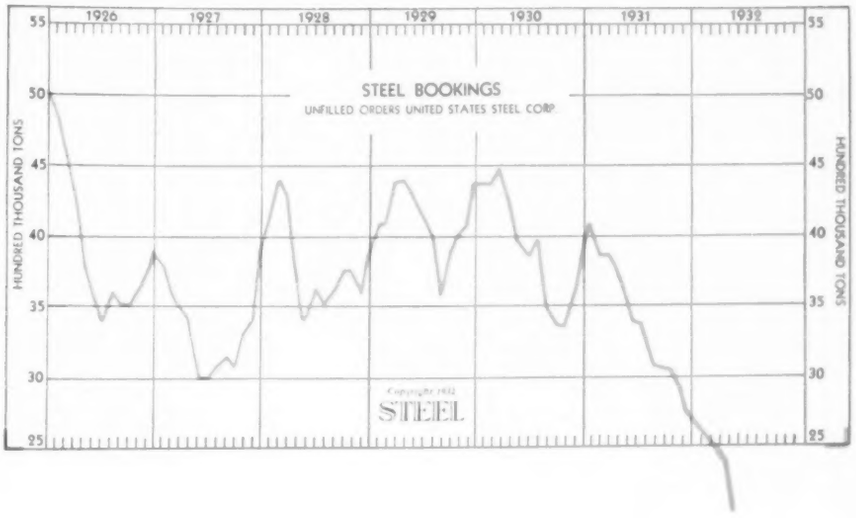
Railroad Earnings Decline Sharply; Quarterly Return 1.27 Per Cent

The net railway operating income of 167 class 1 railroads declined sharply in April, according to the Bureau of Railway Economics. Income was $20,621,017, which for that month was at the annual rate of return of 1.17 per cent on their property investment. In April, 1931, the net railway operating income amounted to $39,074,311 or 2.25 per cent on the property investment. During the first quarter of this year net operating income totaled $87,535,374 or an annual rate of return of 1.27 per cent. In the first four months of 1931, income was $148,186,723 or 2.14 per cent. Seventy-four class 1 railroads operated at a loss in the first four months of 1932.



Rail Earnings

April, 1932	$20,621,017
March, 1932	32,289,300
April, 1931	39,074,311



Million Tons	1932	1931
May	2,177	3,620
April	2,326	3,897
March	2,472	3,995
Feb.	2,545	3,965
Jan.	2,648	4,132

Backlog of Steel Bookings Declines to Record Low

Unfilled bookings of the United States Steel Corp. as of May 31 totaled 2,177,162 tons, the lowest record of tonnage bookings made since the corporation started issuing these reports in June 1902. The nearest approach to the current low record was the 2,674,757 tons on the books on Dec. 31, 1910. The unfilled tonnage decreased 149,764 tons in May or over 6 per cent while for the same period last year there was a drop of 277,277 tons or over 7 per cent. Losses in the total unfilled bookings now have appeared in 14 consecutive months. The small gain in March last year of 30,136 tons have been followed by unbroken losses to date.

Machine Tool Orders Gain Slightly; Shipments Drop to New Low

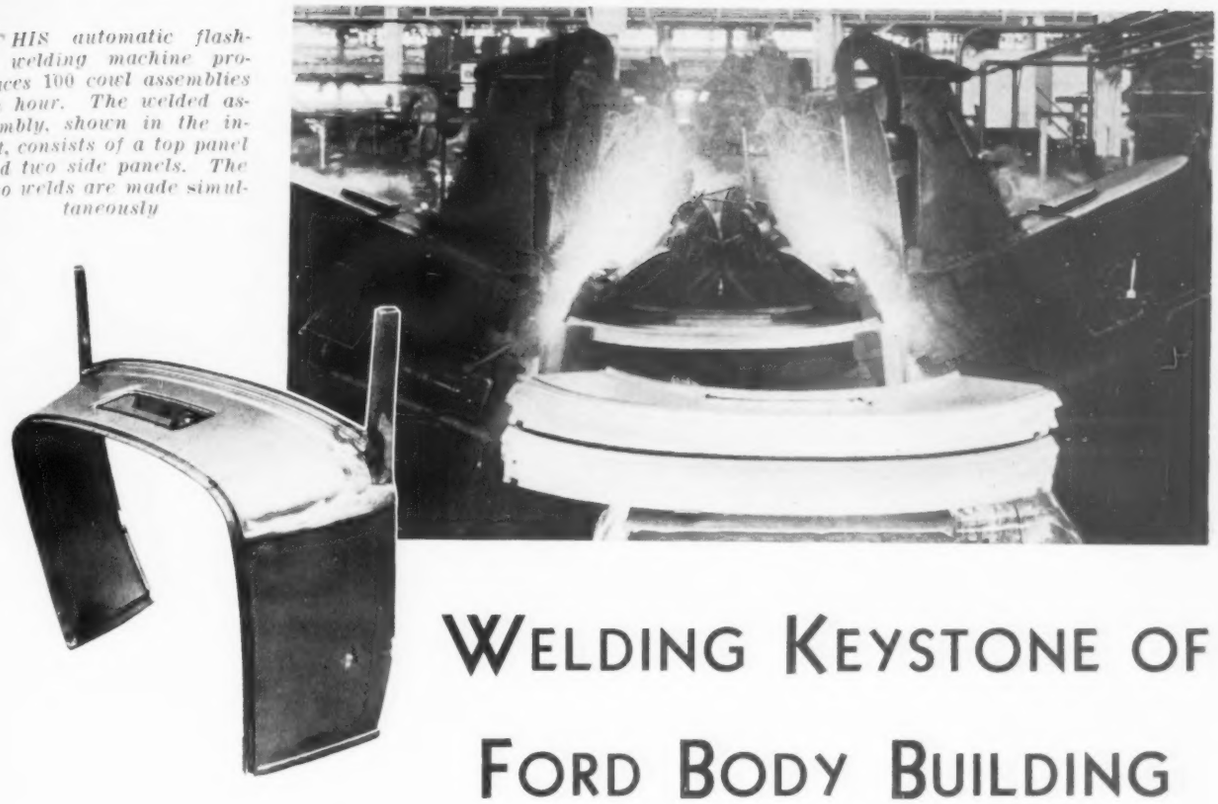
According to the compilation of the National Machine Tool Builders' Association, the three months' moving average of machine tool orders advanced slightly from 37.1 in April to 37.5 for May. This slight gain, however, still places the trend far below the level of May last year, when average gross orders were 103.3. In May the index of shipments dropped to 31.6, the lowest rate of which the association has record—from October, 1925, and less than half the average rate of 81.0 reported for the entire year of 1931. The index of unfilled orders for May rose to 64.6 compared to 62.9 for April and 231.9 for May last year.

	Per Cent
May, 1932	37.5
April, 1932	37.1
May, 1931	103.3

A Spectacular Ford Welding Operation

ACCOMPANIED by a double shower of sparks, the most interesting of all Ford welding operations is performed in this machine. In less than a minute the back panel and right and left quarter panels are joined in a single assembly by flash welding. The three panels are placed in the machine by three operators and quickly clamped; the two pairs of water-cooled electrodes, one pair on either side and pivoted at the top, are lowered into position and latched at the bottom. Compressed air holds the electrodes firmly against the metal. Pressing of a button starts the welding operation consisting of an 8-second heating period, current cutoff, and squeezing of the metal edges together under a pressure of 25 tons. With elevation of electrodes the body assembly is lifted out. Two 440-volt transformers contained within the machine supply the welding current at 15 volts.

THIS automatic flash-welding machine produces 100 cowl assemblies an hour. The welded assembly, shown in the inset, consists of a top panel and two side panels. The two welds are made simultaneously



WELDING KEYSTONE OF FORD BODY BUILDING

BY E. F. ROSS
Associate Editor, STEEL

IN ITS Rouge plant at Dearborn, Mich., the Ford Motor Co. builds all two-door bodies and a small part of the four-door bodies. For this work, the company depends heavily upon welding and its engineers have devised processes differing from those used on Model A and unlike those used by other body builders.

The cowl welder is an interesting machine and is completely automatic after the operator presses the welding button. The cowl is composed of three parts, a top panel and two side panels. First the top is placed upside down in the machine and the two side panels are placed in a vertical position on either side; these parts then are clamped in position by air-operated valves controlled through two handles, one on each side of the machine.

With the clamping, the water-cooled copper electrodes contact with the metal along the joints and when the button on the left side of the machine is pushed, the flow of current heats the metal to a predetermined temperature for a predetermined time, the current is cut off automatically and the pieces forced together to accomplish flash butt welds. Surplus metal squeezed out of the joint and forming a flash is ground off to provide a smooth surface. Two men operating this machine weld 100 cowl assemblies an hour.

Another interesting machine is the front end bar welder in which the windshield frame is welded to the cowl unit. The cowl unit with its two upright supports for the windshield frame is placed in the machine in its normal service position on the car. Next, the windshield frame with two members extending down along the back of the cowl section is put into proper place and both units are secured by air clamps. Two operators, one on each side, with two sets of bar welding tools place the tools against conveniently located copper bus bars and make some 50 spot welds, about 20 up each side and about 10 across the top of the cowl.

An automatic machine has been designed to spot weld six nut retainers to the wheel housing of the quarter panel for attaching the rear fenders. The quarter panel is laid on its side under six copper welding dies which

SECOND of a series of articles describing metalworking processes used by the Ford Motor Co. in building its new automobiles. This one describes welding methods employed in body fabrication. The first installment was published in the June 6 issue of STEEL. Subsequent articles to appear in early issues will deal with welding of various assemblies, forging, heat treating and pickling practice.

are arranged in a semicircle and which have a downward movement of about 6 inches. Above each electrode is a magazine containing a supply of pressed metal retainers with the nuts inside and as the electrodes are lowered to welding position a set of the nuts and retainers slide into position on the quarter panel and are spot welded simultaneously. As the electrodes are raised, another set of nuts and retainers move down ready for the next assembly.

One of the largest machines in the body production line is the back panel welder in which the back panel and the two quarter panels are joined together. The panels are assembled in the machine in normal service position and in this respect differs from customary practice in body building plants. Ordinarily the back panel is placed horizontal and the quarter panels vertical. With the panels clamped in position by air clamps, the operator presses a welding button and some 10 feet of flash welding is performed in a few seconds. The flash on the outside of the body is removed by grinding and after finishing there is no evidence of a weld having been made. This back panel welding is new in Ford practice, for in Model A, the back panel and quarter panels were bolted on the inside and the joints on the outside were covered with molding from top to bottom.

Two Welds in Roof Section

As the next step in body assembly, the front roof section is attached to the assembly described in the preceding paragraph. The machine for this operation is known as the top welder and in it is placed the welded assembly of back and quarter panels in their normal position on the car. Next the front roof section is set in position in the machine and both parts are air clamped and flash welded. The roof of the car has a large rectangular opening in which the fabric top is inserted, therefore, the welds are two in number, one on each side about 10 inches long and located in the curved section of the roof. A feature of this machine is that only one transformer is required to supply the welding current, although the welds are made simultaneously. Two operators can produce one assembly each minute.

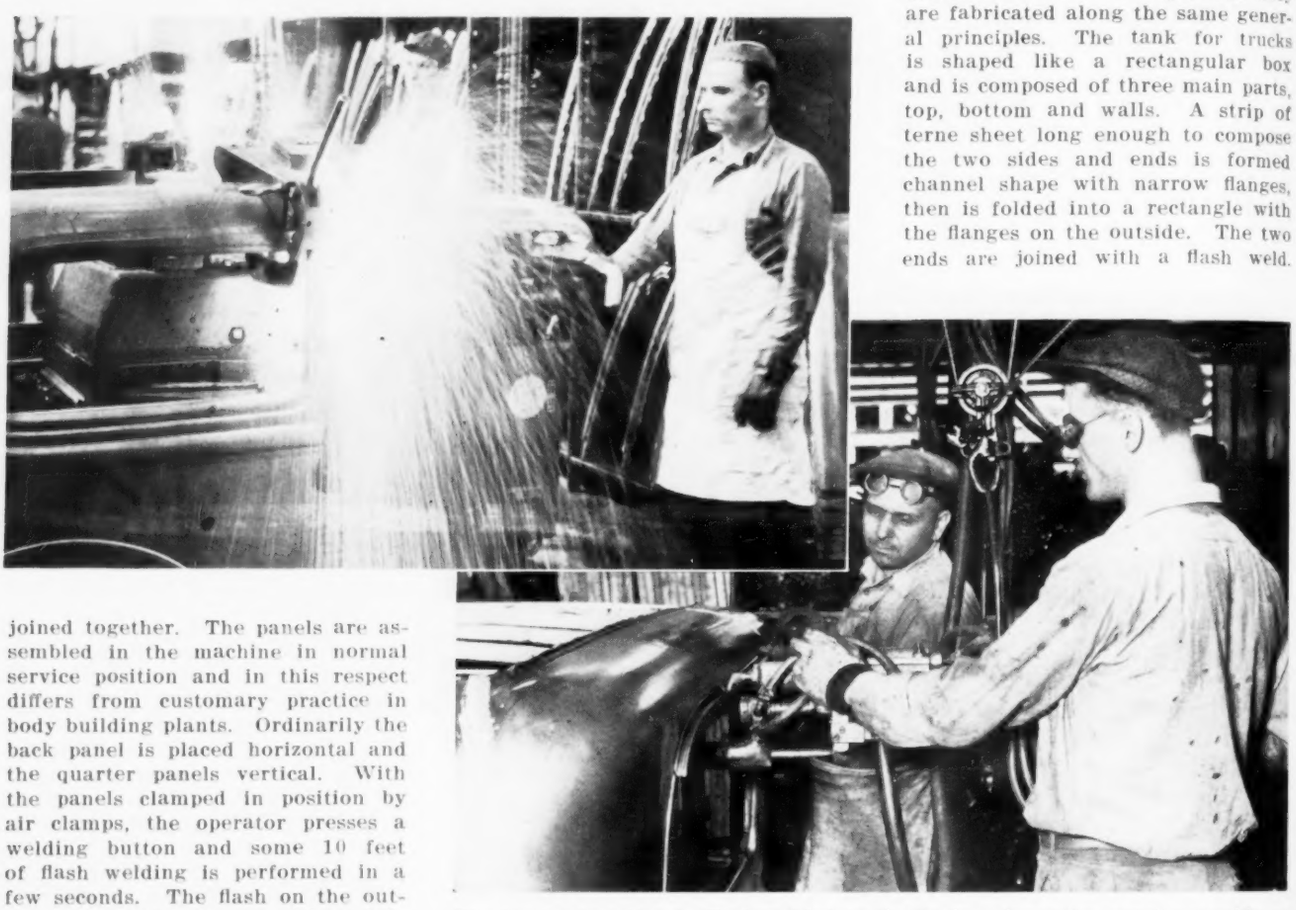
After this welding operation, the body assembly is transferred to an adjacent holding fixture for attachment of the drip molding, one section of molding going on each side just over the window and door openings. This molding is positioned by hand and spot welded with a unique portable welding machine suspended from an overhead monorail.

The welder is a compact unit in spite of the fact that it has the transformer built within it and has complete water cooling to the copper electrodes as well as the transformer. To afford safety to workmen, the primary of the transformer uses only 220 volts instead of the customary 440 volts in stationary machines. The contactors are housed in steel boxes mounted on the framework above the monorail. The welder is completely automatic in operation; when the operator presses a button in the handle, the electrodes clamp the work by air to afford 500 pounds pressure, the current flows for a predetermined time and is cut off and the electrodes open ready for the next weld.

Terne Sheets for Gas Tanks

Gasoline tanks are constructed of terne sheets formed to shape and completely electric welded. The designs for passenger cars and trucks differ somewhat in shape, but they are fabricated along the same general principles. The tank for trucks is shaped like a rectangular box and is composed of three main parts, top, bottom and walls. A strip of terne sheet long enough to compose the two sides and ends is formed channel shape with narrow flanges, then is folded into a rectangle with the flanges on the outside. The two ends are joined with a flash weld. This rectangle is placed in a continuous resistance seam welder and the bottom sheet welded on, the seam joining the sheet and the side wall flange. Next a perforated baffle plate assembly, consisting of one longitudinal member and two transverse members is inserted in the open tank and machine spot welded to the side walls at the six places where the members make contact. In the final operation, the top of the tank is seam welded to the upper side wall flange.

As just mentioned, the baffle plate



The top roof section is flash welded to the back and quarter panel assembly as shown in the upper left illustration. The two side welds are made simultaneously, although the machine has only one transformer. Drip molding is spot welded to the body as shown at the lower left. The gun-type welder suspended by monorail has water-cooled dies and all the automatic features of a stationary machine

assembly consists of one longitudinal member and two transverse members. In reality, it is composed of five members—the longitudinal member to which are spot welded four transverse members, two on each side. In present practice, the opposing transverse members are offset slightly necessitating four sets of simultaneous spot welds, but Ford engineers now are developing a method for reducing this to two sets by exactly opposing each pair of transverse baffles and spot welding through three thicknesses of metal.

The fuel tank for the passenger car is of two-piece construction and is supported at its ends in the frame at the rear. Its shape is considerably different from the Model A tank which was mounted forward with the top serving as the cowl of the body and the rear serving as the dash. The new tank is of larger capacity and is deeper in the front portion than the rear.

TWO operators spot weld reinforcement to the cowl assembly using bar welders with water-cooled points. The illustration shows the copper bus bar which energizes the bars and provides leverage

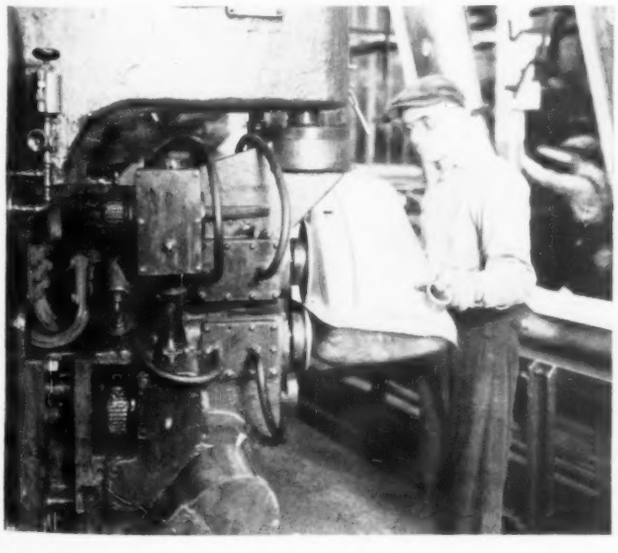
Welded by One Operator

It is constructed of two pressed terne sheet stampings, the bottom being considerably deeper drawn than the top, which fit together so that the outside edges coincide for a width of about 1 inch to provide room for a continuous resistance weld. The two halves of the tank are quickly spot welded together at a few points, then are passed on to the continuous seam welder where one operator holding the tank in his hands passes the edges between the revolving water-cooled copper disk electrodes. For Model A, two men were required for the seam welding operation.

Resistance seam welding of Model A tanks was performed at the rate of 38 linear inches per minute, but this has now been increased to 68 inches per minute through the use of thyratron control. A seam weld is essentially a series of overlapping spot welds and in the first machines developed it was difficult to control the density of the spots. The purpose of the thyratron tube system, therefore, is to control the welding cycle automatically and precisely and at the same time to afford flexibility in adjusting the cycle.

The equipment operates in synchronism with the 4600-volt alternating-current supply of the welding machine. The weld is always started at a predetermined point in the voltage wave and stopped when the current passes through zero. Thus the period of current application can be controlled accurately even with "on" times of but 1 or 2 cycles.

The control embodies a series transformer, the primary of which is connected in series with the primary of the welding transformer and the secondary of which is short circuited by two thyratron tubes connected thereto. Welding current will not flow unless the grids of these tubes are properly energized. For controlling and energizing the grids of these thyratons three small thyratrons are used. One in combination with a condenser acts as a timer, and this timing tube trips when the condenser is charged to a certain point and controls the grids of the other two small thyratrons which, in turn, control the two power tubes. The control has no moving parts and is subject to no such wear as is involved in mechanical interrupters.



SEAM welding the upper and lower sections of the passenger car gasoline tank. These machines have thyratron tube control which permits a speed of 68 linear inches per minute

Spots Overlap in Seam

For the gas tank job, the control is set for the current to heat for 5 cycles then to drop 2 cycles. During this period of 0.083 seconds the seam has moved 0.132 inches, in other words, the spot centers are this distance apart. However, the spots are of sufficient size that there is actually an overlapping of spots in the seam. By transformer, the potential at the weld is reduced to 0.8 volts.

The thyratron control is exceedingly compact as compared with mechanical control equipment and is located on a balcony several feet from the machine. One unit is capable of controlling two seam welders, which provides further economy.

Another improvement in seam welders resulted from early experience gained in their use on Model A work—that is in the matter of driving the copper electrodes. The weight of the work, of course, rests upon the lower and smaller diameter electrode, therefore, it was power driven, while the upper was permitted to idle. This method proved unsatisfactory, consequently both electrodes were redesigned for mechanical driving.

The drive is not through the shafts but through two small grooved rolls contacting with the electrodes, one above the top electrode and the other below the bottom electrode, all on the same vertical centerline. For best results, the peripheries of the electrodes must be knurled and free from scale and this condition is maintained by providing the grooves of the driving rolls with serrated surfaces.

Steel Is Finding New Use in Smoke Washing Equipment

TO COMBAT sulphuric gases and solids in smoke and soot washing equipment, the development of which has been stimulated by wide-spread complaints against smoke nuisances, especially in large cities and industrial sections, a wide variety of steel and alloy metals are utilized. Carbon steel, steel pipe, lead-lined iron pipe, boiler plate and noncorrosive steel and a high copper alloy, Everdur, are used in the installation of one system, which, while not preventing the escape of smoke, does eliminate more than 90 per cent of soot, dust and solids, allowing to escape only a whitish or light gray thin smoke purged of flying particles.

*Several Systems Devised

There are several patented systems used for smoke abatement, some elaborate and others comparatively simple. In the washing system, the smoke is literally washed, water being used to remove soot, ash and noxious gases. The apparatus is installed on the outlet at the top of the stack, each installation presenting an engineering problem of its own yet in principle much the same, the size of washer and the amount of material used depending on the diameter of the stack. In a general way, the same plan is used, whether the fuel be bituminous, anthracite, oil or gas or whether the equipment be incinerators, smelters or open-hearth furnaces.

The principle of the smoke washer is not unlike the principle involved in washing street air for use in freshening and cooling theaters and auditoriums. On the top of each stack is erected an inverted cone, with a dome shaped canopy over the stack. Inside the canopy are located jet sprays of water which catch the cinders, solids and parts of the gases coming up the stack. The solids are dropped into the bottom of the inverted cone where they are carried to filter boxes by the flow of water. A pump is used to force the water back through the sprays after it has deposited the solids in the filter box. Blowers are used to force the smoke through the tall stacks and sprays of water. The washers are large enough to remove 60 pounds of fly ash a minute in some cases if needed.

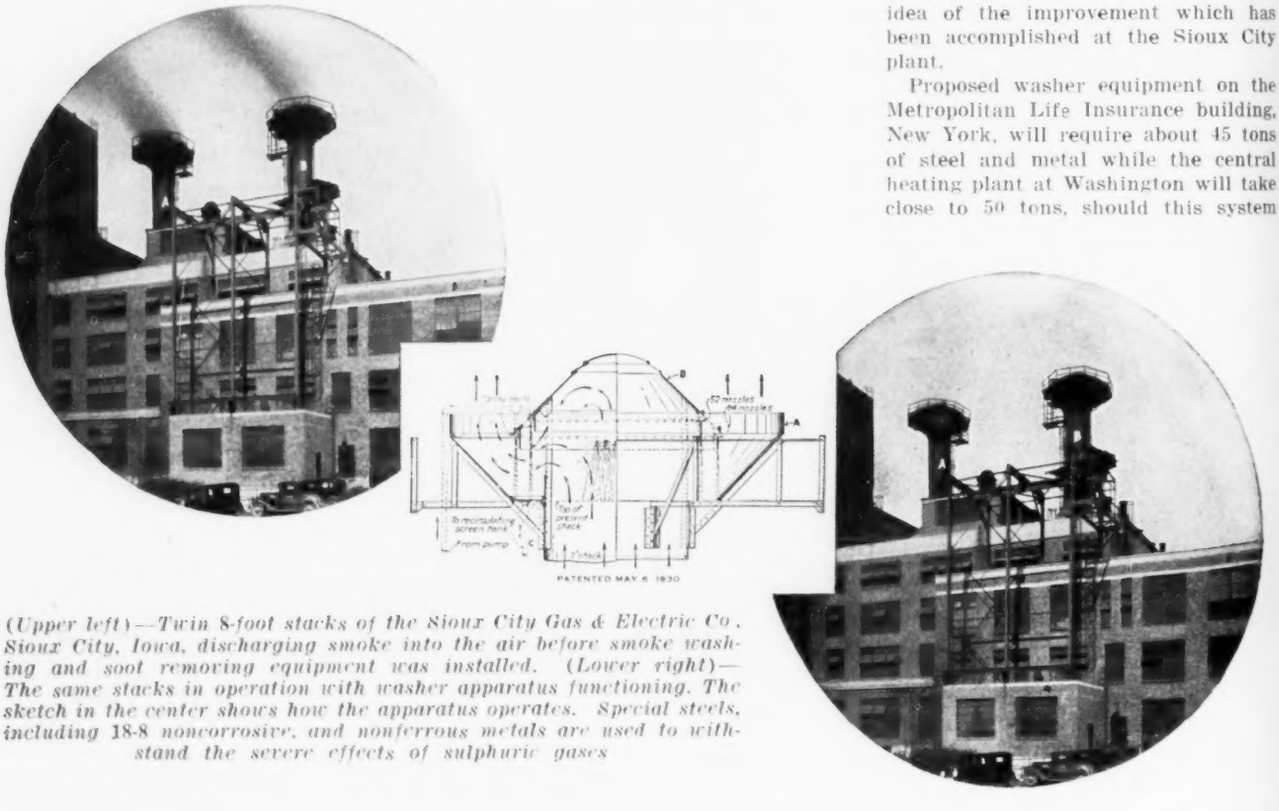
Nozzles, cone, interior piping, in fact all parts coming in direct contact with fresh combustion gases are of Everdur metal, the action of sulphuric gases being extremely severe on materials not highly noncorrosive. The outlet pipe through which passes the soot, carried by the refuse water, is lead-lined iron pipe, the lead resisting the action of the acid in the water. At this point temperatures are low enough to permit the use of lead-lined iron pipe; above when the smoke first strikes the water the heat is too high to allow use of this nonferrous metal.

The soot-ladened water is carried by gravity to a series of screen boxes constructed of 18-8 chrome-nickel steel, passing through several and then into a steel tank made of boiler plates and bitumastic lined. This screening removes the solids, but the acids remain, they being neutralized after water analysis by the use of lime and soda ash, the water being used again, pumped upward to the top of the stack through an iron or steel pipe. Some installations located near an ample water supply carry the water off, a fresh supply being constant. Painted galvanized steel in considerable proportion to the total weight is used for brackets, gratings, ladder and supports for the washer. The equipment is operated from the fire room.

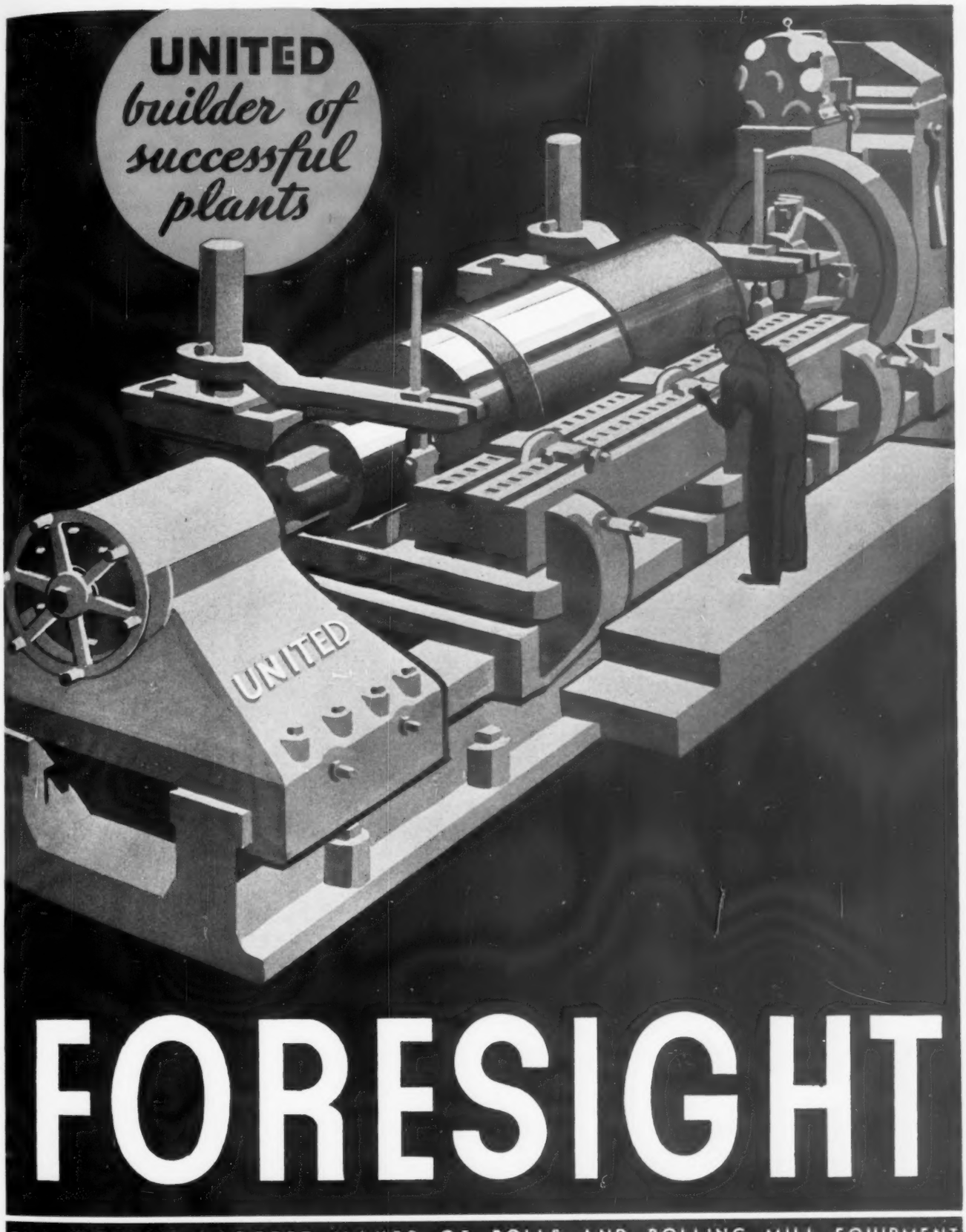
Installations Are Numerous

New York City has a number of large installations, as also have some of the smaller cities and industrial plants located in less congested areas. At the Sioux City Gas & Electric Co. plant, Sioux City, Iowa, washers are installed on twin 8 foot diameter stacks, removing impurities from combustion of pulverized fuel burning equipment. There are two 1100 horsepower boilers discharging to each stack, and in addition the coal mill vents are connected to one stack. The accompanying illustrations give some idea of the improvement which has been accomplished at the Sioux City plant.

Proposed washer equipment on the Metropolitan Life Insurance building, New York, will require about 45 tons of steel and metal while the central heating plant at Washington will take close to 50 tons, should this system



(Upper left)—Twin 8-foot stacks of the Sioux City Gas & Electric Co., Sioux City, Iowa, discharging smoke into the air before smoke washing and soot removing equipment was installed. (Lower right)—The same stacks in operation with washer apparatus functioning. The sketch in the center shows how the apparatus operates. Special steels, including 18-8 noncorrosive, and nonferrous metals are used to withstand the severe effects of sulphuric gases



FORESIGHT

THE WORLD'S LARGEST MAKER OF ROLLS AND ROLLING MILL EQUIPMENT

70" UNITED Heavy Duty Roll Lathe—the largest ever built—to serve the high production rolling mills recently installed . . . and those now under construction . . . and others definitely projected.

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PITTSBURGH — PENNSYLVANIA

of smoke treatment be adopted. The apparatus is also adaptable for ship stacks, resulting in clearing the after decks of flying cinders and at the same time reducing the height of stacks. On land installations, tests show that draft is increased 10 per cent with the washer operating, the hot gases striking the cold water resulting in contraction and condensation and a greater pull up the flue. This type of washer is patented by the American Smoke & Soot Washer Co. Inc., New York, and was developed by Charles M. Gerhold, president.

Rubber-Like Reaction Product Resists Solvents

Exhibiting practically all the characteristics of rubber but being unaffected by solvents as is rubber, an olefin-polysulphide reaction product known as Thiokol has been attracting interest among mechanical engineers. Because of the material's unusual resistance to the deteriorating action of most gases and liquids, particularly gasoline and oils, it is being used extensively in the automotive industry. Among many other applications which either have been made or for which tests are being conducted are: Covering for ignition wire for protection against oil and corona conditions, paint spray hose, gaskets for electrical refrigerators to protect against refrigerant gases, tank car linings for conveying acids and solvents, protective covering for underground cables, gaskets and gas tanks.

The new product is being produced commercially by the Thiokol Corp., Yardville, N. J. It is made entirely of chemicals, containing no rubber whatsoever, and like rubber it is compounded and vulcanized in processing finished articles. In appearance it is similar to crude rubber.

Alloy Resists Moderately High Temperatures

Under the heading "Is Licensed To Fabricate High Temperature Alloy," STEEL in its issue of June 13, page 28, announced that the Driver-Harris Co., Harrison, N. J., has been licensed by the International Nickel Co., New York, to melt and fabricate Ni-Resist, a corrosion-resisting alloy containing 14 per cent nickel, 6 per cent copper, 2 per cent chromium and the balance cast iron.

The heading on the item was misleading, for the alloy is resistant only to moderately high temperatures and is not, therefore, considered a high temperature alloy.

Finishes Seamless Tubing By a New Method

The Ellwood Ivins' Steel Tube Works, Oak Lane, Pa., is finishing seamless steel tubes by a new method. This process, on which a patent application has been filed, permits the production of seamless tubing with commercially perfect surfaces. The first lot of steel tubing produced by this company with the new finishing method involved between 40,000 and 50,000 feet, in small diameters, which were shipped to the Philippine islands for use in repairing government aircraft. The company also has furnished to the government boiler tubing made by this method.

This process, which is one of the many inventions of Ellwood Ivins, applies in the drawing of the tube and the lubricant. This lubricant not only facilitates the drawing, but protects the surface while the tube is in the furnace in the process of heat-treatment.

Mr. Ivins has the distinction of producing the first seamless tube in America.

Machine Tool Dealers Size Up Replacement Business

A survey made by members of the Associated Machine Tool Dealers and reported at the spring meeting of the organization in Granville, O., June 6-7, indicated that manufacturers realize the absolute necessity of modernizing their plants through replacement of obsolete and worn out equipment if they are to compete in future markets. The conclusion arrived at places the amount of this replaceable equipment as large enough to keep machine tool interests busy for years to come.

This study of underlying economic conditions had been suggested to representative machine tool dealers prior to the convention by William K. Stamets, president of the association. Therefore, representatives from each district were prepared to show the basic soundness of industry in their localities and the probable scale of future operations in the machine tool industry.

The convention listened to an address by Robert M. Gaylord, president, Ingersoll Milling Machine Co., Rockford, Ill., and president, National Machine Tool Builders' association, Cincinnati.

Approves Revised Safety Code for Foundries

Sponsored by the American Foundrymen's association and the National Founders' association, a revised safety code for the protection of industrial workers in foundries has been adopted as American standard No. B8-1932, by the American Standards association, as of April 7. The code is a revision of a safety code approved as a tentative standard in 1922 and put into general use in industry at that time. Single copies of the revised code are being furnished free of charge to members of the foundrymen's association; additional copies may be obtained for 20 cents from C. E. Hoyt, executive secretary of the association, 222 West Adams street, Chicago.

NEW HOME FOR MINING AND METALLURGY STUDENTS: Plans are being completed by the department of mining and metallurgy of the University of Wisconsin, Madison, Wis., for moving into this building during the summer. Of fireproof construction, the new structure provides 28,000 square feet of laboratory floor space. The first floor comprises crushing and screening room, ore dressing room, ceramics department, physical testing room, and two physical metallurgy laboratories. The second floor includes temperature standards laboratory, pyrometer laboratory, dark rooms, chemical laboratory, several lecture rooms, graduate seminar rooms and faculty offices. Several industrial groups are planning to maintain exhibits in the building

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A few years ago a piece of stainless steel cutlery was looked upon as a curiosity. It was, yes, quite expensive. It would not rust, or tarnish, or stain. It was always bright, strong and beautiful.

ENDURO, Republic's Perfected Stainless Steel, has passed the "rompers" stage. Today it is a vital element, in almost every phase of work and pleasure. To old products it brings new beauty. To certain applications its great strength and its resistance to heat bring new standards of safety. To food handling equipment it brings a new measure of sanitation. And where corrosion quickly destroys other ferrous metals ENDURO remains untouched—is practically everlasting.

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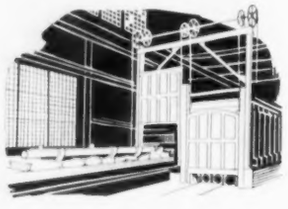
Making the Most of

METHODS AND MATERIALS

IMPOSITION of standards usually proves beneficial both to consumers and producers. In the screw thread industry, lack of uniformity formerly was highly annoying to consumers. About three years ago, as a result of reports by the National Screw Thread commission and the American Petroleum institute, a movement began which since has resulted in standardization of limits on threads, the included angle between threads, taper of the thread, the lead and even the finish of the thread. As a result there is a decided improvement in the interchangeability of standard bolts and nuts, valves, fittings, etc. Producers have been compensated for their participation in this standardization movement by a great reduction in the number of complaints from their customers.



A HEAVY furnace door can be opened and closed by means of an electrically-operated thrustor connected to the door through a rack and pinion. This rack and pinion are meshed to rotate a shaft and open the door; to close the door the magnetic switch controlling the thrustor is de-energized and the door closes smoothly. A definite cushioning action at the end of the stroke prevents injury to the door insulation.

S S S

A western plant found it necessary to place a $\frac{3}{4}$-inch coupling in a 3-inch water line carrying 20 pounds pressure and which could not be shut off. The job was accomplished by first arc welding the coupling to the line, next heating the pipe inside the coupling with the arc and then quickly inserting a cutting torch to cut the hole through the pipe. The operators were drenched, but otherwise the connection was made without difficulty.

S S S

A brake drum manufacturer who pickles the drums after they have been stamped and annealed finds that a crate designed so that the pieces can be kept separate from each other, yet is capable of being easily loaded and unloaded, is the most desirable. This crate is made from corrosion-resisting material and is arranged so that the drums stand on edge.

S S S

Inspection of a number of airplane and automobile parts by X-ray is becoming more widespread. Among the applications in the inspection of complicated parts where the safety factor plays an important part are airplane motor valve stem bushings, airplane propellers, welded airplane struts, automobile steering knuckles, automobile axles, crankshafts, motor blocks and others. X-ray inspection also includes metal shaft golf clubs, welds in pressure stills, high pressure boilers and welded pipe.

S S S

In building composite structures of cast steel and rolled steel by welding, cast steel with a carbon content of 0.30 per cent and under can be welded as successfully as the rolled steel. Higher carbon and alloy cast steels can be welded if proper procedure is used.

S S S

To reduce expenditure, a pubic utility requiring a large number of bolts for one particular job decided not to purchase the nuts, as they were not needed. It was found later, however, that in this instance the bolt cost more without the nut than with it. The manufacturer explained that the standard product terminated its passage through the production line with the nuts screwed on and the bolts boxed and packaged for shipment. To fill an order for the bolts alone it was necessary for someone to break open the boxes, unscrew the nuts, and repackage the bolts. An extra charge was added to cover labor costs.

S S S

Semicontinuous nitriding is accomplished by a new electric furnace installation at a cost said to be comparable to that obtained in continuous equipment. The furnace consists of a movable chamber mounted upon track wheels and located above a stationary hearth. The hearth, which is twice the length of the chamber, has mounted upon it two nitriding retorts and by means of a hand crank the furnace chamber can be placed over either one of the retorts at will.

BECAUSE of work hardening characteristics, difficulties are encountered in drilling deep small diameter holes in 18-8 chrome-nickel corrosion resisting steel. A case in point are oil holes 6 inches deep and 5/16-inch diameter. An English steelmaker points out the desirability for maximum rigidity, but this is not easily obtained in this instance. Drills with only approximately 2½ inches fluted and the rest plain cylindrical section are cited as the best, if easy and frequent withdrawal of the drill is possible to clear the chips. As an alternative, drills 7 inches long on the flutes and with slightly thicker webs might be preferred.

S S S

In production welding of high-nickel alloy sheets, jigs are used frequently. Experience has shown that the jig acts as a chill and absorbs heat which otherwise works into the sheet and warps it. C-clamps are employed to hold the jig together and to insure good metal-to-metal contact between jig and sheet. Occassionally copper bars have been used to provide maximum heat absorption where minimum buckling is desired.

Scanning the Field of Technology

A Digest of Important Developments Pertaining to the Production, Processing, Application and Performance of Steel

Modern Furnace Equipment For Forge Shops

Forging costs reduced by modern furnaces, by C. L. West and R. R. LaPelle, in Heat Treating and Forging, May 1932, *p.* 315, 4 *pp.*, 4 *illsts.*

Probably no field of heat application exists today in which such large savings can be realized through the installation of modern furnace equipment as in the drop forging industry. The term "furnace" as applied by most drop forge men in the early years of the art, was construed roughly as a pile of firebrick bound together and equipped with some kind of burner at either end and a charging slot along one side which belched forth smoke and flame at the forging crew. Such furnaces were commonly built with total or partial lack of engineering facilities and little, if any consideration was given to proper combustion or hearth size required.

With the application of automatic temperature control equipment in forge furnaces, along with continuous furnaces, much has been accomplished in improving efficiency of heating methods. It is pointed out that the negative attitude of the forging industry in the matter of installing new and modern furnace equipment may be accounted for by the fact that price of the product has been forced down to such a level as to make imperative the avoidance of extra expense involved in new furnace equipment.

—STEEL, 6-20-32

Growth of Steel Foundry Industry in America

By F. A. Melmoth, exchange paper of the American Foundrymen's Association at the 1932 *meeting of Australian Bureau of Steel Manufacturers, in The Foundry, June* 1932, *p.* 16, *(first installment)* 4½ *pp.*, 4 *illusts.*, 1 *table.*

Growth and development of the steel industry in the United States has been unparalleled in any country, and the steel casting portion of the industry is no exception, as confirmed by the fact that production of steel castings in 1900 was 192,803 tons, a figure which in 1929 rose to 1,583,040 tons.

The question naturally arises as to the causes for this rapid growth. It is not uncommon in European business and in technical circles to place basic responsibility for American rapid progress on the immensity of demand and to conclude that with smaller schemes of production success must necessarily be more limited. The author's opinion, based on his own observations, is that the size and growth of the American steel founding industry is due to two factors: First, a progressive and aggressive attitude on the part of steel founders, calculated to discover a continuously enlarging field of application for their product, coupled with an effort to make a steel casting the most obvious article for the purpose desired; and second, the free and open interchange of ideas and opinions which exists between firms, individuals and organizations.

—STEEL, 6-20-32

Economics Involved In Use Of Refractories

By S. P. Mason, in Blast Furnace and Steel Plant, June 1932, *p* 512, 2½ *pp.*, 1 *illust.*

In a steel mill the yardstick for measuring the performance of furnace linings is the refractory cost per unit of operation. In a melting furnace the unit of operation is a ton of steel or a heat of steel. The tonnage unit can also be used in measuring performance in billet heating furnaces if the size of the billets remains practically the same over a long period of time. But such is not usually the case and since the furnace lining receives as much punishment in heating small billets as in heating large billets, operating hours or turns is a more definite unit.

This yardstick, the refractory cost per unit of operation is a necessary tool if progress is to be measured or even recognized. Without such a measure the fallacy is apt to be made of assuming that refractory priced at twice as much as the one in use must last twice as long to produce the same cost, or that a brick which costs 50 per cent of the usual price and lasts 60 per cent as long is saving money.

—STEEL, 6-20-32

Rockwell Hardness Unchanged By Magnetic Treatment

By R. H. Harrington, in Metal Progress, June 1932, *p.* 40, 2 *pp.*, 1 *illust.*, 1 *table*

Magnetic hardening of steel recently has become a topic of some importance with publication of work done by E. G. Herbert, who has published data indicating that hardened steels and various nonferrous alloys may be hardened considerably by rotating the pieces in a magnetic field. However, in recent comment, Dr. Rosenhain has pointed out that no other investigators have published data in support of Mr. Herbert's results, and that English metallurgists tend to view this work "with a large degree of skepticism."

This article describes tests made in the research laboratory of the General Electric Co. in an effort to duplicate Mr. Herbert's results. Samples of high-speed steel of the 18-4-1 tungsten-chromium-vanadium analysis were hardened and magnetically treated as nearly as possible according to Mr. Herbert's published data. Hardness, however, was tested by means of the Rockwell hardness tester, whereas Mr. Herbert used his pendulum hardness tester. Conclusions drawn from the work at the General Electric Co. are that the magnetic treatment, as applied to the quenched steel, does not materially affect the Rockwell "A" hardness. It is possible that the pendulum hardness tester may be sensitive to changes in a thin surface film and it may be that work hardening of the surface film during the hardness test is a variable factor.

—STEEL, 6-20-32

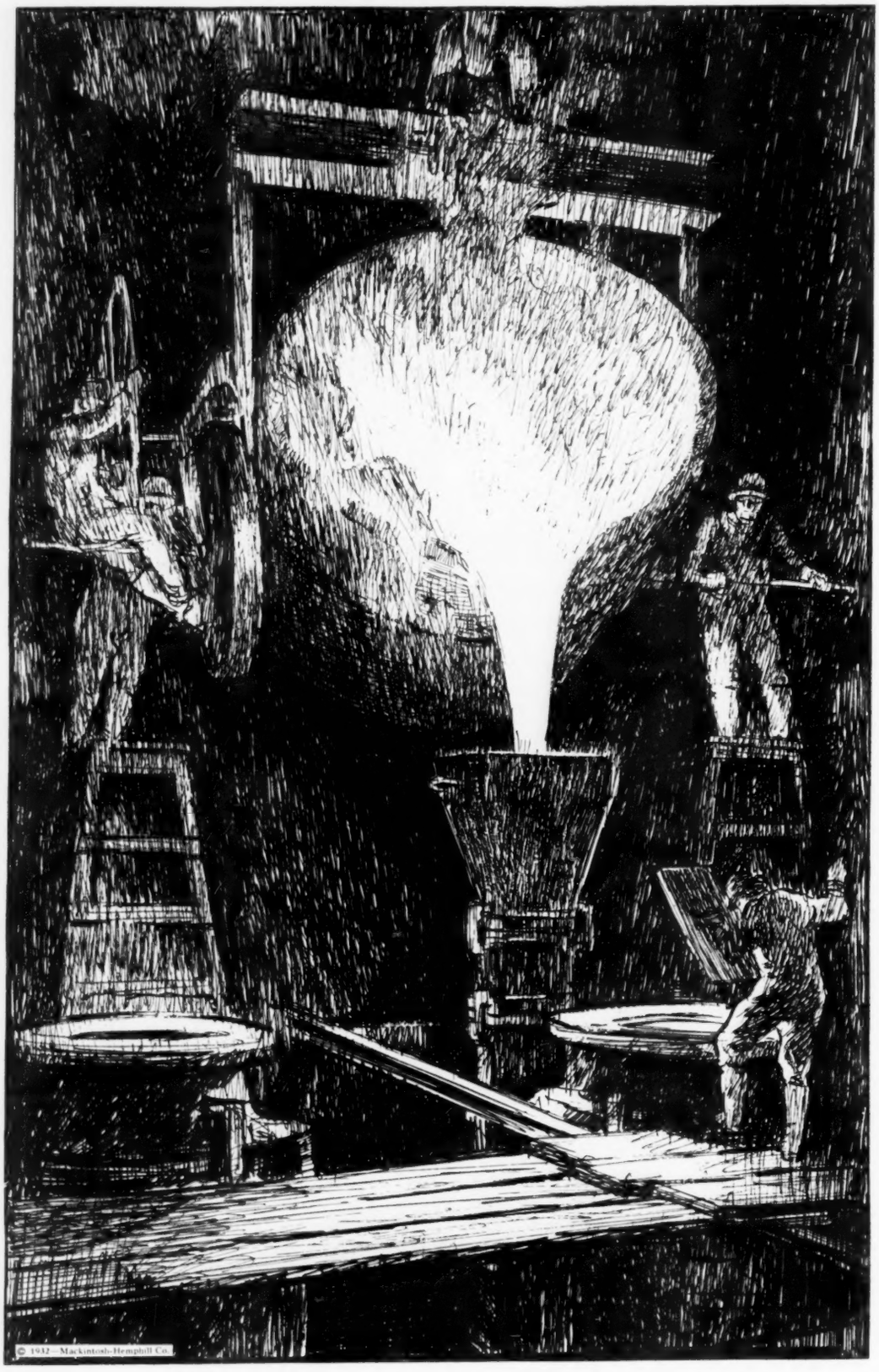
Electronic Tubes and Their Use in Industry

New applications, in Electrical Production, May 1932, *p.* 7, 1 *pp.*, 1 *illust.*

An interesting application of the thyratron tube has been made in the plant of an Akron, O., rubber company where in a number of operations conveyors are used and it is important than the speeds of the various conveyors in a chain be synchronized. On a loop of the material between conveyors ride wheels similar to rider pulleys, and the solenoids actuated by these wheels govern the current rectified by thyratron tubes and thus synchronize the speeds of motors driving the conveyors.

A Milwaukee company uses the photoelectric relay in piling bags. After the bags are stitched they travel on a moving belt to a stacking table. A suitable light source projects a beam of light across their path at such a place that the photoelectric relay is actuated and metal fingers come up under each bag and toss it on the pile.

—STEEL, 6-20-32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What You *Want* in a Roll, We *Put* in a Roll

Those properties which make Mackintosh-Hemphill rolls noteworthy in their proper balance of strength, finishing qualities, and wear-resisting, non-slipping, and anti-fire-cracking characteristics are not implanted in any one stage of processing, nor by any single operation.

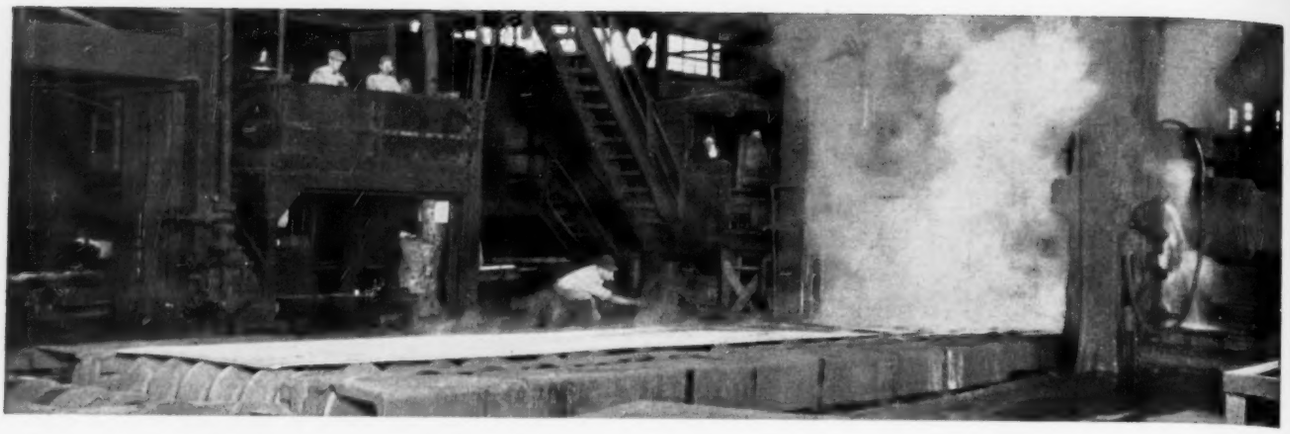
They come from the care, skill and experience that governs every step in production. Metal-mix, melt-control, casting, chill, machining—all are carried on with never-flagging pains that assure superlative results, always duplicated.

The Garrison plant of Mackintosh-Hemphill has been casting rolls for over 108 years. It is only natural that the products should be out of the ordinary. The Mackintosh-Hemphill organization itself has been identified with the ferrous industry for 130 years. It is only natural that we should know mill problems . . . and know how to solve them. Whether it is rolls, machinery, or equipment, you never—in dealing with Mackintosh-Hemphill—need ask, "Can you make this?" You just *say* what you want . . . and we *do* it.

MACKINTOSH-HEMPHILL COMPANY

Since 1803 at Pittsburgh

A copy of the pouring illustration will be sent you without charge, on request. It is part of a series of ferrous industry scenes in etching style.



PROGRESS IN STEELMAKING

CLEANING the surface of steel sheets with abrasive blasted from a series of rotating nozzles has been made possible by the development of a high-pressure gun. Steel grit 50 mesh and finer is employed for blasting light-gage stock. The rotary gun receives its supply of abrasive from a system of air-lock hoppers.

PERIODICAL data on the acid strength of pickling baths are obtained by a German sheetmaker by allowing a definite amount of the acid sample to react in a closed vessel with a weighed amount of potassium carbonate. The volume of carbon dioxide thus liberated is read off on a burette calibrated in per cent of free acid. Testing the waste liquor by this method frequently discloses the wastage of large quantities of useful acid.

♦ ♦ ♦

Reducing the wall thickness and diameter of steel pipe without an anneal between reductions has been made possible by the development of a new machine which cold swedges and forges in one pass. Steel tubes with an outside diameter of 2¼ inches and a wall thickness of 0.25-inch are reduced to 1¼ inches outside diameter and 0.09-inch wall gage at the rate of 9 feet a minute.

♦ ♦ ♦

Electric furnaces now are used by two stripmakers for bright annealing coiled stock with an energy requirement of about 175 kilowatt hours per ton. Each furnace is built with a bell-type chamber and is served by several bases upon which the coils are piled. An inner cover, placed over the stack of coils and an atmosphere of illuminating or other suitable gas maintained within the hood, serve to exclude air during the heating and cooling cycles. Operating results disclose a substantial saving in the annealing time, floor space and handling labor and an improvement in the uniformity of annealing and surface condition.

♦ ♦ ♦

Control desks for the pulpit of continuous mills now are made in 14-inch sections each containing the necessary switches for starting, stopping and adjusting the speed of two main roll motors. The top of each section is hinged to facilitate the inspection of all devices and wiring.

SIZE of iron ore has little influence on the refining of basic open-hearth heats, according to a test conducted on a 70-ton furnace by a German steelmaker who found that roll scale, dumped from a charging box into the bath, sunk through a blanket of slag having a maximum thickness of 4 inches.

♦ ♦ ♦

Forging furnace equipment now is available in which scale-free heating is effected by the use of diffusion flame combustion. Progressive combustion is obtained by admitting gas and air to the hearth in alternate layers and in the proper proportion thus protecting the forging ingots or billets with a gas blanket. As the layers flow parallel to the furnace bottom the hydrocarbons are broken down and the resultant incandescent particles of carbon provide a highly luminous flame for rapid heating by radiation. The work is covered with an extra layer of gas which protects it from scaling up to 2400 degrees Fahr.

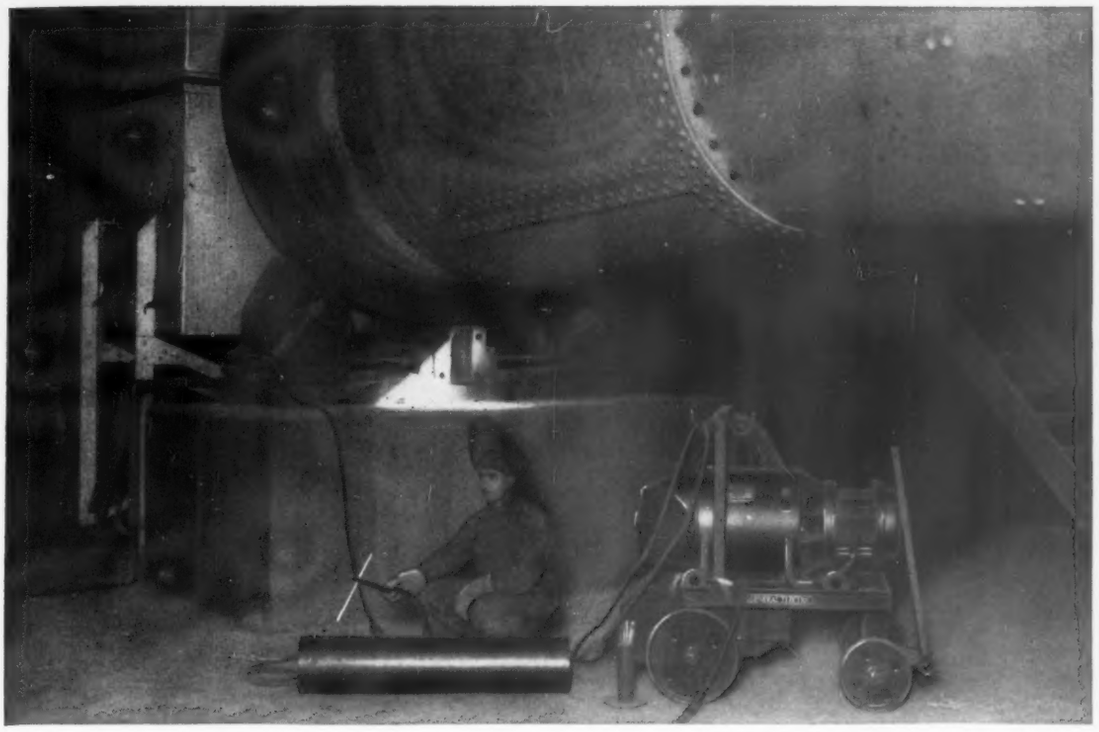
BLAST furnace gas now is being used in Germany for heating a 1250-ton hot metal mixer. Two regenerative chambers are built in a single block, one being used for preheating the air for the mixer flame. Preheated air also is used in the second chamber to burn cold gas for heating the brickwork, the cycle being similar to that used in blast furnace stove practice. Hot air from the regenerators is conveyed to the mixer burners through insulated pipe. The burners are provided with flexible couplings in order to allow free movement with the mixer when it is tilted to decant iron into the ladle beneath the pouring spout. Temperatures up to 2500 degrees Fahr. are claimed.

♦ ♦ ♦

One of the most recent applications of corrosion and erosion-resistant alloy steel is for needle valves used in domestic electric refrigeration units.

♦ ♦ ♦

Nitrogen in amounts up to 0.016 per cent has no deleterious effect on sheet steels or on the galvanizing of the sheet, so far as recent tests made by a steelmaker in the Chicago district disclose.



"How do I like the New G-E Welder?

Better than any I have ever used!"

THE NEW G-E ARC WELDER

Combines and excels all the best features of all the good welders now on the market . . . plus new features all its own.

1. Stable, flexible arc
2. Quick recovery ("pep")
3. Self-excitation
4. Spark-free commutation
5. Simple operation
6. Duplex voltage control
7. Dead-front control panel
8. Large, protected instruments
9. Light, compact, strong construction
10. Low center of gravity
11. A definite purpose for every ounce of material

The operator, who is kept busy on repair work in a Mid-Western cement plant, was enthusiastic.

"It sure is a real set. Easy to handle; easy to haul around; holds a steady arc; puts the metal on just the way you want it. She's 100 per cent O.K."

If you are skeptical of testimonials and claims, we hope you will ask your welding distributor or nearest G-E office for a demonstration. Compare the new G-E arc welder with any other welder on the market. While you are investigating this set, ask also about the complete G-E line of welding electrodes and accessories.

530-130

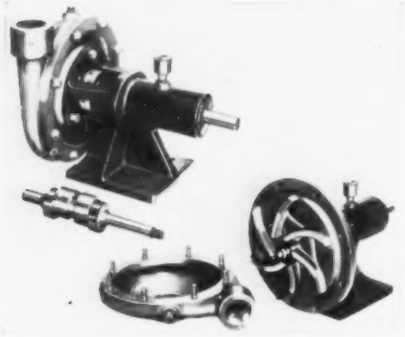
GENERAL ELECTRIC

NEW EQUIPMENT

PRODUCTION FABRICATION TREATMENT FINISHING

Parts of Centrifugal Pumps Are Interchangeable

Hills-McCanna Co., 2349 Nelson street, Chicago, has designed a new line of centrifugal pumps for handling chemicals, etc. Shaft and impeller alignment is accomplished by providing antifriction bearings to carry the load in any direction. The stuffing box is of the split screw gland type and all parts are interchangeable.



Hills-McCanna centrifugal pump for handling chemicals, etc.

Those parts coming in contact with the liquid can be made of any machineable ferrous or nonferrous alloy. Pumps stocked are made of acid resisting bronze, Monel metal, nickel, close grained cast iron and several types of Hills-McCanna alloys.

The pump, shown in the accompanying illustration, has removable inboard and outboard heads, which is a feature when handling fluids that are highly corrosive, as it is only necessary to replace the heads and impeller. When it is imperative to have equipment that can be taken apart for cleaning, the nuts which attach the inboard and outboard heads are replaced with large wing nuts that can be tightened without the aid of tools.

◆

Master Switch Regulates Control Circuits

Electric Controller & Mfg. Co., 2696 East Seventy-ninth street, Cleveland, has developed a master switch known as type NX, the function of which is to regulate the control circuits of a magnetic controller. The device is designed for use where a maximum of three points of speed control in either direction is required. Applications for which the unit is particularly well adapted include roller tables and other steel mill drives, bridge and trolley motions of small cranes where not more than three points of speed control are required, and for small hoists equipped with the Wright dynamic lowering circuit magnetic controller.

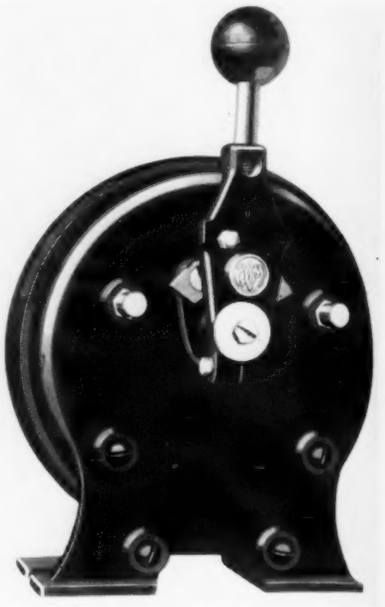
As shown in the accompanying illustration, this master switch is entirely enclosed by a sturdy steel cover and has an aluminum frame. It may be mounted in an upright or inverted position; the operating handle is provided with tapped holes for mounting the handle vertically or horizontally as desired.

◆

Acquires License to Make And Sell Rod Reel

United Engineering & Foundry Co., Pittsburgh, has acquired exclusive license for the manufacture and sale of the Perrett rod reel, a new invention. As shown in the accompanying illustration it is a swivel-type double-bucket reel, self discharging, requiring no stripper or kick-off, running continuously. The machine has two cored buckets, one on each end of a vertical drive. Rod is delivered through a pipe guide to the upper bucket, which rotates continuously, and is laid up in regular layers as a coil.

As soon as the end of the rod has arrived, the entire coiling assembly, which is mounted on trunnions, is rotated vertically, interchanging the two buckets. The loaded bucket, with its finished coil, travels to the lower or inverted position, and the coil is deposited upon the conveyor ready for wiring or further treatment.



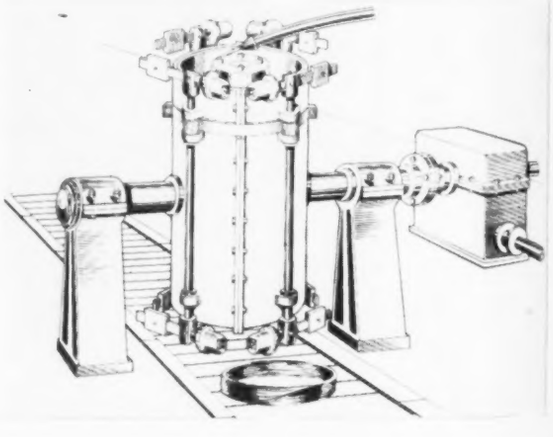
Master switch developed by Electric Controller & Mfg. Co.

To retain the coil during the swivel motion a set of coil arms extend over the open top of each bucket with guide rollers to protect the coil from damage. The coil arms remain in this position until the bucket is completely inverted and is ready for discharge.

◆

Aluminum Spray Nozzle Has Many Applications

Chain Belt Co., Milwaukee is offering a small die cast aluminum spray



OPENING and closing of coil arms of new double-bucket, self-discharging rod reel may be automatic or controlled by small air cylinder. United Engineering & Foundry Co. has acquired the license to manufacture and sell it

"NATIONAL" ROLL

Rolling Mill Machinery

Weight — Rigidity — Workmanship

Why Experiment? - -
Use the Best

We Specialize in

SHEET, TIN, AND PLATE ROLLS
SPECIAL CHILLED ROLLS, COLD ROLLS, SAND ROLLS
EXTRA HARD ROLLS FOR BRASS, COPPER, ALUMINUM

THE NATIONAL ROLL & FOUNDRY COMPANY

Office and Works: AVONMORE, PA., U. S. A.

nozzle for removing scale from sheets in rolling mills, sluicing ashes in power plants, removing debris from intake screens, washing silica sand and crushed stone, etc. The nozzle was developed originally for cleaning traveling water screens.

An application of the new unit is shown in the accompanying illustration. Through the medium of a powerful flat or sheet spray obtained by having a round stream hit a curved deflector plate with retaining sides, the company has produced a highly efficient nozzle of many uses. The result of this construction is a flat spray of mist with all the water powerfully directed toward the material to be cleaned.

◆

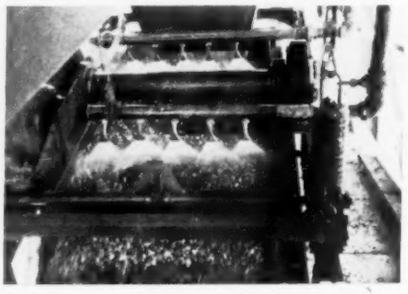
Casters Incorporate Flexible Unit To Carry Load

Divine Bros. Co., Utica, N. Y., has brought out a revolutionary design in truck casters, which eliminates the king bolt, putting in its place a flexible unit. This new unit, shown herewith, is of simplified 2-piece design, constructed throughout of heat treated steel forgings, chrome nickel steel balls and roller bearings.

The flexible joint which replaces the rigid king pin is seated on the hardened cup of a self-locking safety set screw. Raceways are held together by the simple method of splitting them vertically instead of horizontally. By this balanced assembly, the load is distributed on center and annular balls, approximately two-thirds on the former and one-third on the latter. Each ball supports equal load and resists an equal part of thrust transmitted to them.

Main load bearings operate in a continuous reservoir of lubricant, sealed against dirt and water. The axle, which rides on automotive type rollers bearings, also is protected by positive lubrication. Hub guards prevent the entrance of dirt, grit, and water; also prevent strings and ravelings from winding around the axle and binding the wheel. The casters are supplied in a wide range of sizes, with steel and canvas cushion wheels, and also in a rigid type.

Caster with flexible ball joint introduced by Divine Bros. Co.



Application of aluminum spray nozzle designed by Chain Belt Co.

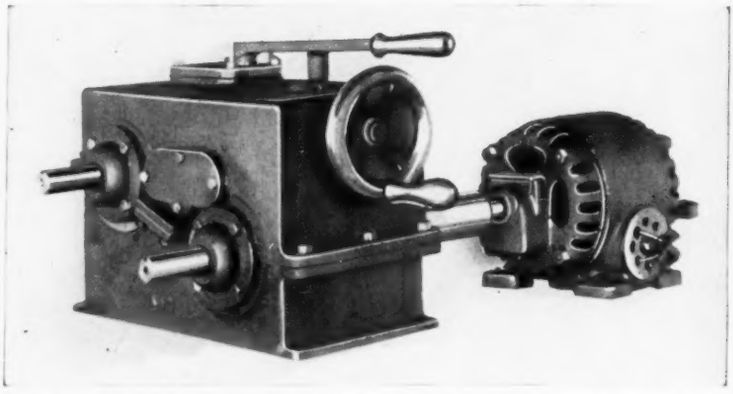
◆

New Unit Provides Minute Speed Changes

Lenney Machine & Mfg. Co., Warren, O., has brought out a combined variable speed transmission and reduction unit with a speed range of from 15 to 150 revolutions per minute, with the motor turning at a constant speed of 1750 revolutions per minute. Forward, neutral and reverse can be accomplished instantly by a shift lever while the motor is in motion. The reverse feature is optional to the user.

Speed of the unit, shown in the accompanying illustration, is controlled by a hand wheel conveniently located on the box, and may be adjusted to an infinite number of speeds. Operation is quiet, and is accomplished through special mechanical movements, no gears, screws worms or belts being used.

The motor is coupled direct, without the use of reduction gears, making the entire assembly compact. The transmission is applicable to any drive where speed reducers or transmissions are used. Speed ratios other than the ones given in the foregoing can be furnished.



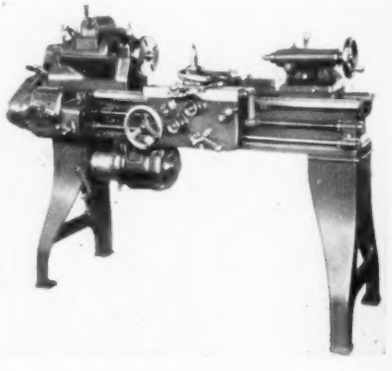
Combined variable speed transmission and reduction unit manufactured by Lenney Machine & Mfg. Co. Motor is coupled direct

◆

Designs Lathe with Built-in Multispeed Drive

Rockford Machine Tool Co., Rockford, Ill., has developed a new line of engine lathes with a built-in multispeed drive and controller as standard equipment. The transmission of the unit cushions starting and provides overload safety for the roller chain drive. A crank is provided for changing spindle speeds easily and quickly without stopping the motor.

Any of 32 thread leads or feeds are obtained instantly by merely shifting levers. Additional and special leads and feeds can be had readily by changing quadrant gears. The lathe, shown herewith, has a thread cutting dial, and a heavy box-section apron supports both ends of shafts.



Special Rockford economy engine lathe has built-in drive

Placing 52,000 Tons Plates for Hoover Dam

Public Work Continues To Dominate Steel Market---Operations Hold at 17 Per Cent---Raw Material Prices Again Drift Lower

STEEL requirements, with few exceptions, reach into four figures only in the case of public work, and this construction is spread out over so protracted a period that it lends comparatively little support at this time to the 17 per cent operating rate which the steel industry is taxed to maintain.

One project, however, which is certain to proceed and which embraces the largest tonnage, public or private, before the industry, is the steel outlet pipe for the Hoover dam. The Babcock & Wilcox Co., New York, was low on three schedules on which bids were opened June 15, calling for 52,000, 55,000 or 60,000 tons of plates.

Federal and state participation in the structural market, livest of all, continues noteworthy. Awards in the past week slowed down after four weeks of exceptional activity, and at 12,672 tons were slightly below the average for the year to date. Estimating departments of some of the larger fabricators have not been so busy in a year, so much pending work—mostly moderate size—being up for figures.

From the railroads, farm implement manufacturers, the oil industry and the general manufacturing trade, demand for steel is practically at the vanishing point. Next to the structural fabricators, automobile manufacturers are the best buyers, but even here the drift is downward because the Ford lead is increasing. Many manufacturers will complete their 1932 schedules early in the third quarter, with a gap prior to a start on 1933 models.

Rail mills, virtually at the bottom of their order books, hope the Reconstruction Finance Corp. loan to the Pennsylvania railroad will release 60,000 tons of rails, but there is no certainty. In the East, railroad buying of bolts and nuts is better, and many carriers are taking tenders on their miscellaneous needs for steel for the third quarter.

Boston may place 2500 tons of steel pipe in July—the largest specific business before mills. Cast pipe is a shade more active, Concord, Mass., placing 1000 tons and Boston 630, with Milwaukee inquiring for 4000 tons of 24 and 36-inch. Recent tank work taken by Chicago district mills totals 1000 tons of plates.

Considering the state of demand, prices on finished steel are holding remarkably well and not in years has the industry been making so determined a stand. But the tendency downward in raw materials is unchecked.

Pig iron at Pittsburgh is off 50 cents a ton on the basis of small, scattered sales, and Mahoning valley quotations are not strong. Scrap prices in all districts are lower, and more distress scrap is available below the market.

Through a reduction of discounts on cap and set screws, an increase of 20 per cent is asked. An adjustment of pickling extras on hot-rolled and hot-rolled annealed sheets benefits buyers $1 to $2 per ton. Some Philadelphia jobbers are quoting domestic prices on sales of foreign steel in lots of 5 tons and under, a strengthening gesture.

The week's variations in prices lower the iron and steel composite of STEEL 4 cents to $29.52 and the scrap composite 13 cents to $6.58—due entirely to the weak situation at Chicago—but leave the finished steel composite steady at $47.62.

With a rate of 29 per cent for both last week and this, Cleveland mills are operating better than any other district. Eastern Pennsylvania, off a half point last week and with no gain scheduled for this week, is the lowest at 12½ per cent. Youngstown mills gained three points last week to 22 per cent, and Buffalo mills were up four points to 14. Chicago was steady at 18 per cent, Pittsburgh declined one point to 16 and Birmingham four points to 19. For the current week, a slight reduction at Buffalo is the only change scheduled.

Composite Market Averages

	June 18	June 11	One Month Ago May, 1932	Three Month Ago March, 1932	One Year Ago June, 1931	Ten Years Ago June, 1922
Iron and Steel Composite	$29.52	$29.56	$29.62	$29.61	$31.02	$36.96
Finished Steel Composite	47.62	47.62	47.62	47.09	48.60	53.29
Steelworks Scrap Composite	6.58	6.71	7.03	7.94	8.84	14.60

Iron and Steel Composite:—Pig iron billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	June 18, 1932	May 1932	March 1932	June 1931
PIG IRON				
Bessemer, del., Pittsburgh	$15.76	16.13	16.76	18.26
Basic, valley	14.00	15.00	15.00	17.00
Basic, eastern del., eastern Pa.	14.50	15.00	15.75	17.00
No. 2 foundry, del. Pittsburgh	15.76	16.16	16.51	18.26
No. 2 foundry, Chicago	16.00	15.60	16.50	17.50
*Southern No. 2, Birmingham	11.00	11.00	11.00	12.00
**No. 2X, Virginia furnace	18.00	18.00	18.00	18.25
**No. 2X, Eastern del. Phila.	14.76	15.13	15.76	17.76
Malleable, valley	14.50	15.00	15.50	17.00
Malleable, Chicago	16.00	15.60	16.50	17.50
Lake Superior, charcoal, del. Chi.	23.04	23.04	23.04	27.04
Gray forge, del. Pittsburgh	15.63	15.63	16.13	17.63
Ferromanganese, del. Pittsburgh	73.24	80.24	80.24	89.79

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

COKE				
Connellsville, furnace, ovens	2.00	2.15	2.25	2.40
Connellsville foundry, ovens	3.00	3.15	3.25	3.25
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	26.00	26.00	26.00	29.00
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	29.00
Billets, open-hearth, Pittsburgh	26.00	27.00	27.00	29.00
Wire rods, Pittsburgh	37.00	37.00	37.00	35.00

	June 18, 1932	May 1932	March 1932	June 1931
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.60	1.55	1.65
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.91	1.91	1.81	1.94
Iron bars, Chicago	1.65	1.65	1.70	1.70
Shapes, Pittsburgh	1.60	1.60	1.55	1.65
Shapes, Philadelphia	1.75	1.75	1.66	1.76
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.55	1.65
Tank plates, Philadelphia	1.79½	1.79½	1.69½	1.85½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.70	1.70	1.70	1.85
†Sheets, No. 24, hot, ann., Pitts.	2.20	2.20	2.20	2.15
Sheets, No. 24, galvan., Pitts.	2.85	2.85	2.80	2.80
Sheets, No. 10 blue anneal., Chi.	1.85	1.85	1.85	2.00
†Sheets, No. 24, hot ann., Chi.	2.35	2.35	2.35	2.40
Sheets, No. 24 galvan., Chi.	3.00	3.00	3.00	2.95
Plain wire, Pittsburgh	2.20	2.20	2.20	2.20
Wire nails, Pittsburgh	1.95	1.95	1.95	1.80
Tin plate, per base box, Pitts.	4.75	4.75	4.75	5.00

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	$9.00	9.75	10.25	10.30
Heavy melting steel, eastern Pa.	6.25	6.25	7.35	8.75
Heavy melting steel, Chicago	5.50	6.20	6.75	8.50
No. 1 wrought, eastern Pa.	6.25	7.75	9.00	10.50
No. 1 wrought, Chicago	4.75	5.25	6.25	8.25
Rails for rolling, Chicago	7.50	8.25	9.50	10.90

Sheets

Automotive Requirements Taper —Pickling Extras for Hot-Rolled Reduced $1 to $2

SHEET PRICES, PAGE 41

Pittsburgh—With most sheet customers ordering material for rush delivery it is evident that third quarter price levels are of little interest. If desired, coverage can be obtained at present levels. Reflecting a more pronounced scarcity of new orders, and indisposition of sheet mills to produce for stock, the average of operations last week was close to 20 per cent, with independent mills in this district at less than this figure. A revision in hot-rolled pickling extras has been effected to correct a price discrepancy.

New York—Lack of building construction continues to depress sheet buying here. Prices are steady.

For repairs to S-class submarines, the navy closes June 28 on 21,120 pounds 18-8 corrosion resisting sheets for delivery to New York or San Francisco for trans-shipment to Pearl Harbor, T. H. The navy also is taking bids to June 28 on 380 tons of black and galvanized sheets.

Youngstown, O.—New sheet business is subsiding, in part reflecting continued contraction in automotive activities. One sustaining factor is the demand from general consuming lines. While rumors of lower prices on common black and autobody are heard, they are no greater in number than usual in a state of trade uncertainty. In general, no important price-cutting is noted.

Philadelphia—Sheet prices are steady, with demand slack. Some tonnage is required for new buildings in Washington in addition to about 50 tons of stainless steel sheets, plates and bars for the postoffice in that city, for which McCloskey & Co., Philadelphia, are the general contractors.

Cleveland—A reduction from $1 to $2 a ton on pickling extras for hot rolled and hot-rolled annealed sheets has been announced by some makers, effective immediately. Others indicate they have the new card in preparation to be effective July 1. The new pickling extra for 12 gage sheets is 15 cents per 100 pounds; 13 to 16 gage, inclusive, 20 cents; 17 to 21 gage, inclusive, 25 cents; and 22 gage and lighter 35 cents. These are for dry pickling. For oiled or limed pickling the extras are $2 above those for dry pickling. Sheet requirements in general appear lighter, and especially specifications from the automotive industry. Seasonal demand from refrigerator makers has practically run its course.

Cincinnati—Sheet orders and production show little change. Automotive demand has not improved. Road construction materials reflect seasonal activity.

Chicago—Sheet producers have abandoned recent plans for higher prices for third quarter and expect to continue at recent levels. Demand is poor and mill operations are off slightly, averaging 15 to 20 per cent.

St. Louis—Sheet sales continue on a restricted scale, almost exclusively for immediate needs. The reaffirming of prices for third quarter failed to arouse any interest on the part of consumers.

Birmingham, Ala.—Sheet production is light. The Gulf States Steel Co. operates its sheet mills one week, then suspends for one or two weeks. The Tennessee Coal, Iron & Railroad Co.'s sheet mills continue to operate at a fair average.

Screen Standard Ready

Washington—Bureau of standards has available for distribution, through the government printing office, Washington, the simplified practice recommendation No. R122-31 on wire insect screen cloth.

Current Finished Steel Prices

Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week

Steel Sheets

HOT ROLLED No. 10
(24 to 48 inches wide)

Pittsburgh, base	1.55c
Gary, Ind. Harbor, base	1.65c
Chicago, del.	1.70c
New York, del.	1.90c
Birmingham, base	1.70c
Philadelphia, del.	1.86c

BLUE ANNEALED NO. 9-10

Pittsburgh, base	1.70c
Chicago, district mills	1.80c
Chicago, delivered	1.85c
Philadelphia, del.	2.01c
New York, del.	2.05c
St. Louis, delivered	2.07½c
Birmingham	1.85c
San Francisco c.i.f.	2.32½c

HOT ROLLED ANNEALED NO. 24

Pittsburgh, base	2.20c
Gary, Ind. Harbor, base	2.30c
Chicago, del.	2.35c
New York, del.	2.55c
Philadelphia, del.	2.51c
Birmingham, base	2.35c
St. Louis, del.	2.57½c
San Francisco, c.i.f.	2.85c

GALVANIZED NO. 24

Pittsburgh, base	2.85c
Gary, Ind. Harbor, base	2.95c
Chicago, del.	3.00c
Philadelphia, del.	3.16c
Birmingham, base	3.00c
St. Louis, del.	3.22½c
San Francisco, c.i.f.	3.50c

AUTOMOBILE NO. 20

Pittsburgh, base	2.80c to 2.90c

FURNITURE

Pitts., No. 10 heavy	2.55c
Pitts., No. 20 light	3.15c

TIN MILL BLACK NO. 28

Pittsburgh, base	2.40c to 2.50c
Gary, base	2.50c to 2.60c
St. Louis, del.	2.77½c to 2.82½c

HEAVY COLD ROLLED NO. 10

Pittsburgh, base	2.25c
Gary, Ind. Harbor, base	2.35c
Chicago, del.	2.40c
Philadelphia, del.	2.56c
New York, del.	2.60c
St. Louis, del.	2.62½c

COLD ROLLED NO. 20

Pittsburgh, base	2.75c
Gary, Ind. Harbor, base	2.85c
Chicago, del.	2.90c
Philadelphia, del.	3.06c
New York, del.	3.10c
St. Louis, del.	3.12½c

TIN AND TERNE PLATE

Per 100-pound box, Pittsburgh

Tin plate, coke base	$4.75
Long ternes, 24, unassort	3.00c

Gary, Ind., base 10 cents higher

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.95
Cement coated nails	1.95
Galvanized nails	3.95

(Per pound)

Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.60c
Annealed fence wire	2.35c
Galvanized wire	2.80c
Woven wire fencing, (9-11 ga.)	$55.00
(12½ ga. and lighter)	$60.00

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, del.	1.79½c
New York, delivered	1.90c
Boston, delivered	2.02c
Chicago, base	1.70c
Cleveland, del.	1.78½c
Birmingham, Ala., base	1.75c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	2.00c
St. Louis, del.	1.97½c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, del.	1.75c
New York, del.	1.87c
Boston, del.	2.00½c
Chicago, base	1.70c
Cleveland, del.	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.10c
Do., wide flange	2.20c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.75c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c
Cleveland, base	1.65c
Philadelphia, del.	1.91c
New York, del.	1.90c
Boston, del.	2.02c
Pittsburgh, cold finish	1.75c
Pittsburgh, forg. qual.	1.85c
San Francisco, c.i.f.	2.10c

RAIL STEEL

Chicago Heights	1.50c
Eastern mills	1.30c

IRON

Chicago, base	1.65c
New York, delivered	1.85c to 1.95c
Philadelphia, delivered	1.86c to 1.96c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts., billet cut lengths	1.75c
Pitts., stock lengths, mill	1.60c
Chi., billet	1.60c to 1.70c
Chi., rail steel	1.45c
Chi., rail steel, road, bridge and culvert	1.45c
Philadelphia, cut lengths	2.06c
Cleveland, cut lengths	1.75c

Cold-Finished Bars, Shafting

Min. 10,000 lbs. of kind and grade

Pittsburgh	1.70c
Chicago, Buff., Cleveland	1.75c
Detroit	1.90c
Eastern Michigan	1.95c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel
Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to 6.75 off
Carloads, Chicago dist.	7.00 to 7.50 off

Alloy Steel

Hot Rolled—F.o.b. Mills

Alloy Quality Bars, 2.65c, mill
(Differentials to various classes of consumers)

S.A.E.	Alloy Diff.	4600 .20 to .30 Mo. 1.25-1.75 Ni.	1.05
2000	0.25	5100 .80 - 1.10 Cr.	0.45
2100	0.55	51.00 Cr. spring	0.20
2300	1.50	6100 bars	1.20
2500	2.25	6100 Spring	0.95
3100	0.55	Cr., Ni., Van.	1.50
3200	1.35	Carbon Van.	0.95
3300	3.80	9250 (flats)	0.25
3400	3.20	9250 (rds.,sq.)	0.50
4100 .15 to .25 Mo.	0.50		

Strip, Hoops, Bands

Hot strip, to 6 in., Pitts.	1.60c
Do, 6 1/16 to 24-in., Pitts.	1.50c
Hot strip to 6 in. Chi.	1.60c
Do, 6 1/16 to 24-in.	1.50c

(Beginning July 1 all hot strip up to 23 15/16 in. will be quoted 1.45c, Pitts., to general trade, 1.50c for less-carloads).

Cooperage hoop, Pitts.	1.60c to 1.70c
Do., Chicago	1.70c to 1.80c
Cold-roll, strip, Pitts., Cleve.	2.00c
Worcester, 3 tons over	2.20c

Rails, Track Material

Standard rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$32.00
Light rails, Chicago	$34.00
Angle bars, mills	2.75c
Spikes, railroad, mills	2.60c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.60c
Spikes, boat, barge, Pitts.	2.90c
Track bolts, Chicago	3.50c
Do, standard, jobbers	73 off list
Tie plates, mills	$37.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 75 off
Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.
Eagle list ..... 75 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 75 off
Tire bolts ..... 60 and 10 off
Stove bolts, 77½, 25 and 10 off in pkgs.; 86 off in bulk.
Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 75 off

HEXAGON CAP SCREWS

Milled ..... 80-25 off
Upset 1 in. diam. and smaller 80-25-10 off

SQUARE HEAD SET SCREWS

Upset, 1 in. and smaller ..... 75-10-10 off
Headless set screws ..... 75-10 off
Upset, larger than 1 in ..... 75-10 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh	$2.50
Do. less carloads, 5 kegs or over	$2.90
Less than 5 kegs	$3.05
Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Sheet piling, Pitts.	1.90c

Bars

Prices Hold Well in Spite of Decreased Demand — Automotive Needs Take Most Tonnage

BAR PRICES, PAGE 41

Chicago—Steel bar specifications from the automotive industry are declining slightly despite sustained demand from Ford suppliers. Reduced requirements of other interests more than offset Ford buying and consumption in other industries shows no improvement. Farm implement manufacturers are quiet and miscellaneous demands light. The market continues 1.70c, Chicago, on soft steel bars, although little test is provided. Rail steel bars usually are 1.50c, Chicago Heights, with bar iron 1.65c.

Boston—Light bar demand shows little interest in third quarter needs. Prices are firm at 1.60c, Pittsburgh. Tool steel activity is light, taking only small lots and bolt and nut makers are doing little.

New York—Commercial steel bars are firm at 1.60c, Pittsburgh, with this figure being extended on third quarter tonnage. Demand from bolt and nut manufacturers, jobbers and railroads continues negligible. Common iron bars are unchanged at 1.60c to 1.65c, Pittsburgh.

Philadelphia—Scarcity of tonnage business continues in steel bars, with prices unchanged at 1.60c, Pittsburgh, for third quarter.

Pittsburgh—The past week witnessed the appearance of several third-quarter inquiries for carbon bars. Inasmuch as the leading low price automobile manufacturer is not an active bar purchaser, automotive specifications are showing a trend toward lower levels. Alloy bars generally are quiet but hold at 2.65c base. The third quarter inquiry for a Detroit automobile producer, which includes forging and soft steel bars, has not been closed.

Cleveland—The automotive industry still is taking approximately 60 per cent of the commercial steel bar output here, but demand from this source shows a tendency to taper. Building and railroad outlets are blank. In some respects, the situation appears a little more encouraging, as there are more scattered, small-lot orders, some users who have been out of the market for a long time recently coming in to replenish stocks for early requirements. The market is steady at 1.65c, base, Cleveland.

Fort Dearborn Foundry Co., Chicago, has changed its name to Fort Dearborn Engineering Co. Lucien I. Yeomans, 205 West Wacker drive, is manager.

Cold-Finished Buyers Slow To Cover Needs

Cold Finished Prices, Page 41

Pittsburgh—Consumers of cold-finished steel bars by cautious buying are not improving volume of business for June. No difficulty apparently is being encountered in applying the minimum of 1.70c on lots of 5 tons and more of a size and grade, but some smaller cold-finished bar users are slow in accepting the new price schedule.

Tin Mills Operating Close to 50 Per Cent

Tin Plate Prices, Page 41

Pittsburgh—Still operating just under 50 per cent, tin mills foresee little of an encouraging nature for prospective specifications. Tin mill operations vary widely for different plants, ranging from 20 to 80 per cent. Several with the higher operations are producing for stock. The base price of $4.75 per box is unchanged.

Plates

Bids Opened on 52,000 to 60,000 Tons for Hoover Dam—Navy Yards Are Buying 1245 Tons

PLATE PRICES, PAGE 41

Chicago—Bids were opened May 15 at Denver on outlet pipes and connections for the Hoover dam, Boulder, Nev. Schedules 1 and 2 call for 52,000 tons of plates; schedules 3 and 4, for 60,000 tons; and schedules 5 and 6, for 55,000 tons. These are alternate schedules. The Babcock & Wilcox Co. New York, is low on all six schedules. The lowest bid varied from $9,270,800 on schedule 4, using 13 foot pipe, to $11,044,800 on schedule 5, taking pipe 17 feet 6 inches diameter. Bids were taken on two items under each schedule involving different methods of paying freight charges. The A. O. Smith Corp., Milwaukee, was second low on schedules 1 and 2. The Western Pipe & Steel Co. of California, San Francisco, was second low on one item in schedules 3, 4, 5 and 6. The Chicago Bridge & Iron Works, Chicago, was second low on one item in schedules 3 and 4. The A. O. Smith Corp. was second low on one item in schedules 5 and 6. The award is to be made from Washington upon final approval, and will be for pipe requiring approximately 52,000 to 60,000 tons of plates.

Recent orders for oil tanks require about 1000 tons of plates.

Boston—Plate prices are firm at 1.70c, Coatesville, Pa., having withstood the test on several sizable tonnages. Demand shows some improvement.

A contemplated water line for Boston, expected out in several weeks, will take several thousand tons. Montreal is having a steel water line welded in this district.

New York—Eastern plate mills are reaffirming 1.70c, Coatesville, Pa., for third quarter. Apart from plates required for the New York Central's west side project, and about 1500 tons for the navy department, on which bids are to be opened June 21, little is noted.

Philadelphia—Plate sellers are quoting 1.70c, Coatesville, Pa., on third quarter inquiry. Trading is light.

Pittsburgh—The volume of new plate orders is light. There is little indication of a change from the present 1.60c base price.

Cleveland—Buyers hesitate to place orders for more than early and actual requirements, and a light volume of business is comprised solely of small lots. A large proportion of recent orders are for less than carload lots, consumers preferring to pay the extra freight. Few have any stocks. The price is steady at 1.60c, base, Pittsburgh.

Contracts Placed

500 tons, tanks for Phillips Pipe Line Co., Bartlesville, Okla., to Chicago Bridge & Iron Works, Chicago.

100 tons, 125,000-gallon elevated tank, La Crosse, Wis., to Chicago Bridge & Iron Works, Chicago.

Unstated tonnage, caissons, South river bridge, near Annapolis, Md., awarded through the Bartlett-Hayward Co.

Baltimore, to Lukens Steel Co., Coatesville, Pa.

Contracts Pending

52,000 to 60,000 tons, outlet pipes and connections, Hoover dam, Boulder, Nev. Babcock & Wilcox Co., New York, low for general contract.

1245 tons, medium black, navy, largely for Boston and Brooklyn, N. Y., delivery; bids June 21, schedules 8225 and 8226.

Unstated tonnage, 6,000,000-gallon water tank for Milwaukee municipal waterworks; bids about July 15.

Suspends Iron Mining at Deep Gogebic Properties

Iron Ore Prices, Page 50

Cleveland—Reports from Ironwood, Mich., are to the effect that the Oliver Iron Mining Co., United States Steel Corp. subsidiary, has suspended mining on the Gogebic range until fall. The mines on that range are underground, the deepest in the Lake Superior district. Operations trend toward open pits in the summer. The stagger system of employment is providing miners on other ranges with some work. No activity is noted in the market here; practically all that has occurred has been limited to arrangements between associated companies for receiving what little the latter will need. Vessel freight rates have been reaffirmed, as anticipated following the mutual adoption of prices at last year's level.

Ore consumption was lower in May than in April, and stocks at Lake Erie ports and at furnaces June 1 were considerably larger than on June 1, 1931, according to the following report from the Lake Superior Iron Ore association, Cleveland.

	Tons
Ore consumed in April	1,039,799
Consumed in May	918,321
Decrease in May	121,478
Consumed in May, 1931	2,674,758
On hand at furnaces June 1, 1932	27,166,711
On Lake Erie docks June 1, 1932	5,533,246
Total at furnaces and Lake Erie docks June 1, 1932	32,699,957
Total June 1, 1931	27,114,747

New York—Quotations on iron and manganese ores are purely nominal, as trading appears at a standstill. Sellers of foreign ores say they would have to cable their home offices should an inquiry of any size appear.

French railroads have granted a 42 per cent reduction in passenger rates to those attending the world congress of foundrymen in Paris in September.

Railroads

Pennsylvania May Buy 60,000 Tons Rails Under Loan—Mills Face Shutdown as Orders Lag

TRACK MATERIAL PRICES, PAGE 41

Pittsburgh—Track material releases are making no improvement and railroad purchases of other heavy finished steel products are somewhat less than in May. Car shop activity is negligible although it is reported that the Western Maryland's plans to change the construction of 150 gondolas will go ahead. Only a small quantity of steel will be required, in all probably not over 200 tons. Prices on railroad products are fairly firm, with tie plates $37 a ton, spikes 2.60c, and angle bars 2.75c. Light rails at $32 are largely nominal as there have been no sales recently.

New York—New York Central will close June 28 on shapes, plates and bars for its third quarter requirements, normally about 2500 tons, and for axles.

Demand for freight cars is at a standstill, with little work of this kind in prospect.

Cleveland—Reports here indicate that the Pennsylvania railroad is preparing to purchase 60,000 tons of rails immediately on adjustment of the financial details of its loan through the Reconstruction Finance Corp. Aside from this prospect there is nothing to foreshadow heavier rail buying in the near future. Industrial rail requirements continue extremely light.

Chicago—New business from railroads is absent and mill backlogs of rails have shrunk until complete cessation of rolling operations is imminent. Releases of track accessories are fairly steady, but light, while demand for miscellaneous material is unimproved. Only a small amount of repair work is being done and the outlook for buying of new equipment is poor. Car builders derive some hope for resumption of buying from the fact that the condition of equipment steadily is being impaired and that replacement is only a matter of time.

Rail Orders Pending

Panama Canala, 500 tons, United States Steel Products Co. low bidder.

Wire Buying Slower as Seasonal Factors Enter

Wire Prices, Page 41

Chicago—Wire demand is tapering gradually, requirements of some manufacturers' wire consumers being smaller, while jobbers hesitate to add $2 in carloads for wire nails, 2.25c to their stocks in view of continued quiet. Little interest is being shown in third quarter buying. Prices are for plain wire, and $38 for wire rods.

Worcester, Mass.—Jobber demand for wire products, which showed a moderate spurt last month, has subsided and operations are irregular. June thus far is ahead of the same month last year with one large interest. Prices are steady and unchanged There is little forward buying.

John A. Roebling's Sons Co., Trenton, N. J., with a bid of 1.2c, delivered, is low on 70,000 feet of 3/16-inch plow steel wire rope on reels of not less than 5000 feet for the mine depot, Yorktown, Va., bids May 31.

Marine corps, quartermaster, Washington, closes bids June 24 on 1,056,000 feet of rubber insulated field wire.

Philadelphia—Trading in wire products is featureless and with prices unchanged for third quarter sellers see little chance for early improvement. Nails are $1.95, Pittsburgh, and plain bright wire 2.20c, Pittsburgh.

Pittsburgh—Orders for merchant wire products are easing somewhat due to seasonal influences, but users of manufacturers' wire are showing a tendency to improve specifications. Occasional nail orders are received in carloads. Stocks in jobbers' hands generally are at a minimum. Prices of 2.00c for plain wire, 3.20c for spring wire, and $1.95 a keg on nails are unchanged.

Refractory Needs Light; Small Lots the Rule

Refractories Prices, Page 50

Pittsburgh—Demand for all grades of refractory brick continues light and occasional specifications are mainly small. It is reported that a district steel mill is asking revised figures on open-hearth brick for an extension program announced some time ago but not yet begun. There has been no change in the price of second quality fire clay brick following the mark-down to $35 per 1000 on first quality several weeks ago. Chrome brick is $42.50, with magnesite brick $61.50.

Structural Shapes

Awards Drop Below Weekly Average for This Year—Tonnage for New Projects Also Lighter—2500 Tons Placed for New Jersey Bridge; Shape Prices Steady

STRUCTURAL SHAPE PRICES, PAGE 41

New York—An increase is noted in the number of small structural shapes contracts, although the volume is lighter. Pending requirements are not much heavier. New York Central railroad is inquiring for third quarter requirements of shapes, plates and bars. The navy is closing June 21 on a large tonnage of angles, channels and special shapes.

Boston—Structural awards in New England totaled about 800 tons in the past week. Except for a few small government jobs, fresh inquiry is light. An office building planned for Boston may take about 1800 tons, while a structure for the city hospital, expected out for bids soon, will take about 500 tons.

Philadelphia—Award of a 2500-ton bridge over the Shrewsbury river in New Jersey, through Seeds & Derham, this city, is outstanding in the local structural market. General trading continues sluggish, with 1.70c, nearest mill, the ruling price on shapes. Through typographical error it was noted previously that the Pennsylvania railroad was to release 4400 tons for a bridge at Washington; this bridge is to be built at Wilmington, Del.

Pittsburgh—Structural fabricators centered their interest last week on the 1400-ton Rochester, Pa., state bridge, bids on which were opened June 17. About 680 tons of structural steel is required for several small Pennsylvania state bridges. A 2500-ton armory is active at Buffalo. Sheet piling interests still have considerable backlog of pending work on which to figure. Plain structural material generally is 1.60c, with sheet piling firm at 1.90c, Pittsburgh.

Cleveland—Small jobs continue to make up the bulk of structural shape tonnage. Bids are going in on several state bridges requiring in all approximately 1000 tons. Fabricators are figuring on two western New York state jobs, taking a total of 700 tons. The largest local job let during the week was 100 tons for a planer tower for Cleveland Brick & Shale Co., to Eagle Iron Works, Des Moines, Iowa.

Chicago—Several small bridge jobs are pending in this and nearby states, and are scheduled for early closing. The majority of other projects represent public work, with only occasional private inquiries appearing. Revised plans for the General Motors building for the Chicago exposition call for 775 tons. Inquiry lacks improvement and awards hold at their recent quiet rate. Plain material is 1.70c, Chicago.

Contracts Placed

2500 tons, bridge over Shrewsbury river, Monmouth county, New Jersey, awarded through Seeds & Derham, Philadelphia, general contractors, to American Bridge Co., Pittsburgh.

1200 tons, bulkhead, Hoover dam, Boulder City, Nev., to Consolidated Steel Corp., Los Angeles.

1100 tons, two highway bridges, California, to Moore Dry Dock Co., Oakland, Calif.

1000 tons, Dairy Delivery building, San Francisco to McClintic-Marshall Corp., Bethlehem, Pa.

800 tons, postoffice, Terre Haute, Ind., to Whitehead & Kales Co., Detroit.

775 tons, building, General Motors Corp., Chicago Century of Progress exposition, to Reuter Bros., Chicago.

500 tons, powerhouse, Ft. Wayne, Ind., to Western Gas Construction Co., Ft. Wayne.

488 tons, bridges for Los Angeles county, Calif., over Rio Honda and Los Angeles rivers, to Kyle Steel Construction Co., Los Angeles.

470 tons, highway bridge, Washington, to D. Nygren, Seattle.

400 tons, highway bridge, Big Flats, N. Y., to McClintic-Marshall Corp., Bethlehem, Pa.

250 tons, armory, Jamestown, N. Y., to Lackawanna Steel Construction Co., Buffalo; Longacre Engineering Co., contractor.

235 tons, addition to girls' high school at Philadelphia, through Alfred Herzog, general contractor, to Robinson Iron and Steel Co., Philadelphia.

225 tons, health unit No. 7, Roxburg, Mass., to New England Structural Co., Boston.

225 tons, telephone building, Brookline, Mass., to New England Structural Co., Boston.

225 tons, steel piling, bridge foundation in connection with track raising, Harvey, La., to Bethlehem Steel Co., Bethlehem, Pa.; T. H. Brockman, New Orleans, contractor. Atlantic Steel Co. awarded 40 tons reinforcing steel.

225 tons, hospital building, Boston, to New England Structural Co., Boston; Matthew Cummings Co., contractor.

225 tons, school, Teaneck, N. J., to unstated fabricator.

220 tons, alterations and additions, New York Steam Corp., New York, to American Bridge Co., Pittsburgh.

210 tons, warehouse, Brooklyn, N. Y., to unstated fabricator.

200 tons, bridge, Custer county, S. Dak., to Pittsburgh-Des Moines Steel Co., Pittsburgh.

194 tons, eighteen beam spans, Oklahoma, to Petroleum Iron Works Co., Beaumont, Tex.

180 tons, theater, Atlanta, Ga., to Ingalls Iron Works Co., Birmingham.

150 tons, state bridge, Maine, to Lackawanna Steel Construction Co., Buffalo.

150 tons, Grant store, Oakland, Calif., to Judson-Pacific Co., San Francisco.

125 tons, state bridge, Somerset county, Vt., to Lackawanna Steel Construction Co., Buffalo.

100 tons, planer tower, Cleveland Brick & Shale Co., Cleveland, to Eagle Iron Works, Des Moines, Iowa.

100 tons, state bridge, Vernon, N. Y., to Lackawanna Structural Steel Co., Buffalo.

100 tons, approximately, building for state penitentiary, Rockview, Pa., to Bauman Iron Works, Reading, Pa.

100 tons, shapes and bars, bridge, Nottaway river, Virginia, to Roanoke Iron & Bridge Works, Roanoke, Va., and Virginia Steel Co., Richmond, Va.

Unstated tonnage, veterans' hospital buildings, Roseburg, Oreg., to Poole & McGonigle, Portland, Oreg.

Awards Compared

	Tons
Awards, week ended June 18	**12,672**
Awards, week ended June 11	**26,361**
Awards, week ended June 4	**30,843**
Awards, this week in 1931	**24,174**
Av. weekly awards, 1931....	**34,236**
Av. weekly awards, 1932....	**15,684**
Av. weekly awards, May....	**17,402**
Awards to date, 1931.....	**964,787**
Awards to date, 1932.....	**392,110**

Contracts Pending

2500 tons, armory, Buffalo.

1400 tons, Rochester, Pa., bridge, American Bridge Co., Pittsburgh, low.

1000 tons, shapes and plates, dam, Alma, Wisc. Injunction against project dissolved.

1000 tons, Ohio state bridges; bids being taken.

700 tons, highway bridge, Seattle.

700 tons, building, city hospital, Boston; plans completed.

680 tons, several small highway bridges, various locations, Pennsylvania.

675 tons, several small highway bridges, various locations, New York.

500 tons, three truss spans, Illinois Central railroad, West Point, Ky.

447 tons, viaduct across South river, Old Bridge, N. J.; bids July 5.

400 tons, Baker clinical building, Deaconess hospital, Boston.

400 tons, courthouse and jail, Ithaca, N. Y.; bids being taken.

400 tons, highway bridge, Algonquin,

Ill.; McClintic-Marshall Corp., Bethlehem, Pa., low.

350 tons, highway bridges, Oklahoma.

300 tons, highway bridge, Biggsville, Ill.

300 tons, addition, reformatory, Elmira, N. Y.

300 tons, highway bridges, Shelbyville, Mo.

300 tons, highway bridge, Henderson county, Ill.; Vincennes Bridge Co., Vincennes, Ind., low.

220 tons, Odd Fellows' hall, Philadelphia; held up indefinitely.

218 tons, Aspinwall telephone exchange, Boston district; Fitzgerald Construction Co., contractor.

200 tons, state highway bridges in Wisconsin; bids close June 21.

200 tons, telephone exchange, Cambridge, Mass.

150 tons, Skin and Cancer hospital, 802-806 Pine Street, Philadelphia; bids opened June 15.

150 tons, Industrial building, Dixfield, Me.; Bearce & Foster, contractors.

125 tons, postoffice addition, Quincy, Mass.; Supreme Construction Co., New York, low.

120 tons, sheet piling, approaches Sixth street bridge, Pittsburgh.

120 tons, state bridges, Maine; Lackawanna Steel Construction Co., Buffalo, low.

115 tons, high school, Downington, Pa.; H. John Homan, Philadelphia, general contract.

110 tons, bridge over Petaluma river, Petaluma, Calif.; plans being prepared.

109 tons, bridges, Harper county, Okla., state highway commission; bids June 21.

100 tons, postoffice, Las Vegas, Nev.; bids June 28.

100 tons, postoffice addition, Niagara Falls, N. Y.; James Devault, Canton, O., low.

100 tons, Filene store, Wellesley, Mass.

100 tons, Economy stores warehouse, South Boston, Mass.

100 tons, state school, Scranton, Pa.; Stoffler & Tillotson Co., Philadelphia, general contractor, low.

Unstated tonnage, children's sanitorium, Beuna Vista, Md.; general contract awarded to McCormick-Lenham Co., Philadelphia, on bid of $323,000.

Unstated tonnage, shapes, plates and bars, third quarter, New York Central railroad; bids June 28.

Coke Output Off Sharply

Coke production in the United States in April made a new low record for the present decline with a total output of 1,939,391 tons, the smallest since September, 1921. Beehive plants made the greatest loss, as is usual. Beehive production lost 33.5 per cent from March, while by-product ovens declined 6.9 per cent.

By-product coke production was at the daily rate of 62,780 tons, compared with 67,400 tons in March. The greatest decline in by-product production was at furnace plants, commercial producers holding up much better.

Concrete Bars

Awards and New Inquiries Are Lighter in Volume—Slow Closing on Many Jobs Increases Pending Tonnage—Illinois Placing 1000 Tons for Highway Projects

REINFORCING BAR PRICES, PAGE 41

New York—Concrete bars for the third Sears, Roebuck & Co. warehouse in this district, 500 tons, have been placed. With buyers slow to close on requirements, pending inquiry continues to gain, highway, bridge and public building work furnishing the bulk of prospective business. Prices are generally 1.60c, Pittsburgh, mill lengths, but on work taking rerolled and foreign material, reinforcing steel prices are weak and irregular. New work for the New Jersey highway department requires about 450 tons.

Boston—Demand for reinforcing bars for highways and bridges is slightly more active. Building requirements are limited to small lots. Light weight bars being rolled at Worcester, Mass., largely for highway work, are an increasing factor in this district. Prices are weak, influenced by rerolled and imported material.

Philadelphia—Reinforcing bar demand is at the lowest ebb in many weeks, only one contract of 100 tons or over being noted. Cut lengths continue fairly steady at 1.75c, Pittsburgh, in carlots.

Pittsburgh—Reinforcing bars are moving largely in small lots with little pressure on prices. Stock lengths hold at 1.60c, Pittsburgh. Awards of consequence are somewhat less numerous. Bars for he Montgomery locks, Beaver, Pa., have been placed.

Cleveland—State highway work continues one of the most promising features of concrete bar requirements. Two Cleveland firms are low on 150 tons of mesh and bars for a highway in Cuyahoga (Cleveland) county. The current price on deformed or plain bars to fabricators is 1.50c, base, Cleveland, and has been extended for third quarter. The mill quoting this price names 1.65c, Cleveland, on small lots to nonfabricators.

Chicago—About 1000 tons of bars for Ilinois road work is being placed. Inquiry is quiet and the volume of awards is smaller than a month ago. The General Motors building for the Chicago exposition will take 180 tons. Prices are unchanged, with concessions still noted.

Awards Compared

	Tons
Awards, week ended June 18	**2,310**
Awards, week ended June 11	**5,891**
Awards, week ended June 4	**4,961**
Awards, this week, 1932	**3,385**
Av. weekly awards, 1931	**6,808**
Av. weekly awards, 1932	**4,446**
Av. weekly awards, May	**3,812**
Awards, to date, 1931	**176,154**
Awards to date, 1932	**111,163**

Contracts Placed

500 tons, warehouse, Sears, Roebuck & Co., Brooklyn, N. Y., to Rawlins Co., New York.

475 tons, two bridges over Rio Honda and Los Angeles rivers, Los Angeles, to Pacific Coast Steel Corp., Los Angeles.

300 tons, highways, Indiana, to Joslyn Mfg. & Supply Co., Fort Wayne, Ind.

200 tons, Montgomery locks, Beaver, Pa. to McClintic-Marshall Corp., Bethlehem, Pa.

190 tons, Telegraph Hill memorial, San Francisco, to Soule Steel Co., San Francisco.

180 tons, building, General Motors Corp., Chicago Century of Progress exposition, to Truscon Steel Co., Youngstown, O.

145 tons, highway, Newton, Mass., to Northern Steel Co., Boston; Sherry Construction Co. Inc., Fall River, Mass., contractor.

120 tons, highway work in Contra Costa county, Calif., to unnamed interest.

100 tons, approximately; 85 tons to Pollak Steel Co., Cincinnati, balance structural to Ben-Tom Supply Co., Columbus, O.; Ohio state highway project No. 191, Gallia county, Ohio. Frowine Bros. Inc., Portsmouth, O., general contractor.

100 tons, addition to girls' high school, Philadelphia, awarded by Alfred Herzog, Philadelphia to Gilmour Steel Co., Philadelphia.

Contracts Pending

595 tons, two bridges, Ventura county, Calif., bids June 29.

500 tons, highways, Indiana; general contract to W. D. Vogel Co., Indianapolis.

330 tons, crossing over Santa Fe tracks at Del Mar, Calif.; bids June 29.

300 tons, dam, Alma, Wisc. Injunction against project dissolved.

300 tons, highway, Trenton to Monmouth Junction road, Mercer and Middlesex counties, New Jersey; bids July 5.

200 tons, bridges, Oregon; bids June 23.

165 tons, viaduct, South river, Old Bridge, N. J.; bids July 5.
150 tons, school, Cincinnati; bids June 27.
135 tons, trestle, Park boulevard, Oakland, Calif.; bids opened.
100 tons, bridge over Cincinnati, Lebanon & Northern railroad at Kennedy avenue, Cincinnati; city to receive bids June 28.
100 tons, state highway section, Grand Central Parkway, Queens county, N. Y.

Bolt, Nut Buying Slow; Prices Up on Set Screws

Bolts, Nuts, Rivets Prices, Page 41

Chicago—Bolt, nut and rivet specifications and inquiries call for small lots, and prompt shipment usually is requested. The volume of business is unimproved, demand still being spotty, with requirements of most automotive interests tending downward. Farm implement manufacturers are placing few orders. Third quarter contracts are being distributed with prices generally steady at 75 off for bolts and nuts and 2.35c, Chicago, for large rivets.

New York—Prices on bolts, nuts and rivets are being reaffirmed for third quarter at 73 off and 2.25c, Pittsburgh, respectively. Some sellers here report a slight improvement in June business, with a little better buying developing from railroads. Jobbers are specifying slowly and in the case of shipyards tonnage is declining.

Bids on 5700 pounds of 18-8 corrosion-resisting steel pan-head straight-neck hull rivets, ⅜-inch diameter, close June 28 for the navy for transshipment to Pearl Harbor, T. H.

Pittsburgh—Bolt and nut makers here last week began issuing third quarter contract extensions at second quarter prices. Last week's demand, however, showed no improvement and specifications are still on a low level. A revision has been made in the price of large bolts, 1⅜-inch to 2-inch diameter, placing them on the same price basis as smaller bolts. These larger sizes were formerly sold by the pound.

Cleveland—Discounts have been lowered on cap and set screws by an important Cleveland producer, the advance on cap and set screws being about 20 per cent. Due to tapering in automotive building nut and bolt makers note a decrease in specifications from that source. However, there is a fair run of current business.

Freight traffic in 1931 declined 18.7 per cent, but claims for damage 28.6 per cent.

Pipe

Market Quiet—Concord Mass., Closes for 1000 Tons of Cast—Milwaukee to Buy 4000 Tons

PIPE PRICES, PAGE 61

New York—Closing on several small state projects brings cast pipe lettings to several hundred tons. Inquiry is largely for fill-in business. Prices are weak, bids on relatively small lots frequently figuring $22 to $23, eastern foundry.

Boston—Cast pipe buying is heavier, the local foundry taking close to 2000 tons during the week, Concord, Mass., closing on 1000 tons. Inquiry is light and prices are easy. Demand for standard pipe is spotty, lack of building retarding buying.

Pittsburgh—Demand for standard pipe apparently is at a minimum, as specifications continue on the same weekly basis as for some months. The low state of consumers' inventories is in a sense a favorable factor, but difficulty persists in inducing customers to build up stocks. Shipments of oil country goods to the shallow east Texas field are fair.

Chicago—Extreme quietness in the cast pipe market is broken only by prospects of an early inquiry from Milwaukee for 4000 tons of 24 and 36-inch pipe. Carload lots and less make up the bulk of recent orders and inquiry gives no encouragement for any early upturn in demand. Prices lack strength.

Birmingham, Ala.—Pipe plant operations here are below 40 per cent. Few awards have been received recently. Many municipalities are unable to finance needed improvements.

Cast Pipe Placed

1225 tons, 10 and 12-inch class 150, Marin municipal water district, San Rafael, Calif., to R. D. Wood & Co., Philadelphia.
1000 tons, 12 and 16-inch, Concord, Mass., to Warren Foundry & Pipe Co., Wharton, N. J.
630 tons, 48-inch, siphon, Metropolitan district commission, Boston, to Warren Foundry & Pipe Co., Wharton, N. J., Bay State Dredging & Contracting Co., contractor.
150 tons, 8 and 12-inch, Lynn, Mass., to United States Pipe & Foundry Co., Burlington, N. J.
125 tons, 6 and 8-inch, Bedford Hills, N. Y., state job, to United States Pipe & Foundry Co., Burlington, N. J.
100 tons, Aurora avenue improvement, Seattle, to French interests.
100 tons, 6 and 8-inch, Woodstock, N. H., to Warren Foundry & Pipe Co., Wharton, N. J.
100 tons, 6-inch, West Springfield, Mass., to Donaldson Iron Works, Emaus, Pa.
100 tons, 12-inch, Beverly, Mass., to Warren Foundry & Pipe Co., Wharton, N. J.
100 tons, 3 to 16-inch, state jobs, Beacon and Kingston, N. Y., to Warren Foundry & Pipe Co., Wharton, N. J.

Steel Pipe Placed

Unstated tonnage, 300 lengths, approximately 5100 feet, 20-inch, riveted shore pipe, United States engineer, Galveston, Tex., to Kane Boiler Works Inc., Galveston; $22.07 a length, f.o.b. Galveston.

Cast Pipe Pending

4000 tons, 24 and 36-inch, Milwaukee; inquiry expected shortly.
600 tons, 3 to 12-inch for Hamilton field, Marine Meadows, Calif.; bids June 20.
150 tons, 6 and 8-inch, Waltham, Mass.
Unstated tonnage, 11,500 feet of 4 and 6-inch class C pipe, Milwaukee; bids June 20.

Steel Pipe Pending

2500 tons, 36 and 48-inch, high pressure water line, Dorchester district, Boston; bids expected next month.
250 tons, approximately, 555 lengths shore discharge pipe, 16 feet, 3 inches long, United States engineer, Philadelphia; Lancaster Iron Works Inc., Lancaster, Pa., low, at $24.50 per length, delivered.
Unstated tonnage, 10,801 cold-drawn seamless boiler tubes, 3628, Boston; 650, Brooklyn, N. Y.; 777, Norfolk, Va.; 5746, Puget Sound, Wash.; Also 252 feet cold-drawn seamless steel boiler tubing, 1.90 O.D., Norfolk, bids June 28.

Hardware and Sheet Metal Groups Meet in October

Thirty-eighth annual convention of the National Hardware Association of the United States will be held at the Marlborough-Blenheim hotel, Atlantic City, N. J., Oct. 17-20. A joint opening session with the American Hardware Manufacturers' association has been arranged for the evening of Oct. 17. Meeting of the National Association of Sheet Metal Distributors will take place the afternoon of Tuesday, Oct. 18. George A. Fernley, 505 Arch street, Philadelphia, is secretary-treasurer of the National Hardware association.

Joseph A. Young Co., 286 Rutherford avenue, Charlestown, Mass., is moving its plumbing supply stock to 237 Commercial street, Malden, Mass., where larger space is available.

FOR WELDING JOBS *that demand* SAFETY PLUS

Where weld safety must be a certainty, Roebling Welding Wire is used to great advantage. It is a *special* wire which, because of its purity and uniformity, *consistently* produces welds that are exceptionally strong and durable.

Naturally, this Roebling Wire is not made on the ordinary tonnage basis. Like the fine wire used for Roebling Bridge Cables and Wire Rope, it is made of pure metals and in *small* open-hearth furnaces that permit close control of the melt and exact refining.

Write to our nearest office below for samples of this welding wire. Convince yourself of its merit. It is made in both gas and electric types.

JOHN A. ROEBLING'S SONS CO. - TRENTON, N. J.

Atlanta Boston Chicago Cleveland Los Angeles New York Philadelphia Portland, Ore. San Francisco Seattle Export Dept, New York, N. Y.

WHY ROEBLING WELDING WIRE IS OF EXCEPTIONALLY HIGH QUALITY...

1. It is a custom-made wire; **2.** the steel for it is not made on the ordinary tonnage basis; **3.** it is made in small open-hearth furnaces; **4.** of special melting stock; **5.** and is produced by Roebling's special methods; **6.** painstaking care is exercised throughout manufacture.

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THE CUSTOM-MADE WELDING WIRE—FOR EXACTING WELDERS

PREMIER SPRING WIRE

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PREMIER SPRING WIRE

. . . For YOUR Protection

So that you may never be in doubt about the spring wire you use—every coil of PREMIER SPRING WIRE will henceforth be marked by a distinctive metal tag—see reproduction above. Actual size, $1\frac{3}{4}$" in diameter. It identifies the quality—and the responsibility—you know so well. Look for it, when you buy spring wire. And remember—our research and engineering staff is always at your disposal when your requirements demand special attention.

1831

1932

AMERICAN STEEL & WIRE COMPANY

208 South LaSalle Street, Chicago — SUBSIDIARY OF UNITED STATES STEEL CORPORATION — And All Principal Cities

Pacific Coast Distributors. Columbia Steel Company, Russ Building, San Francisco — *Export Distributors:* United States Steel Products Company, New York

Strip

Shipments Lighter as Motor Needs Fail to Hold Pace—No Pressure on Prices Is Felt

STRIP PRICES, PAGE 41

Pittsburgh—Some third quarter hot-rolled strip contracts have been negotiated at the new base price of 1.50c. This represents an actual test of the market although contract requests are expected to increase within the next ten days. Strip mills are finding releases increasingly scarce and operations were at a low point of less than 15 per cent last week. There is prospect of a gain to 25 per cent this week. Cold-rolled ordering is made up of small lots generally at 2.00c, Pittsburgh.

New York—The new schedules on hot strip steel are becoming increasingly effective on such new business as is being offered. These schedules call for 1.45c, Pittsburgh, on widths up to and including 23 15/16 inches, in carlots, with a premium of $1 on less than carlots. An effort is being made to firm the market on cold-rolled strip at 2.00c, Pittsburgh, for third quarter. Trading is exceedingly light.

Philadelphia—Strip buying continues sluggish, with sellers generally quoting 1.45c, Pittsburgh, on carlots and 1.50c on smaller quantities for third quarter delivery. These prices are not exepected to come in for full test until after the close of this month.

Youngstown, O.—Specifications for strip are irregular and for small lots with no present increase in number of buyers. Prices are being held firmly, currently and for third quarter. Automotive users have decreased their releases from expected totals.

Cleveland—Stripmakers have few opportunities to quote, as inquiry is exceptionally light. Specifications from the automotive industry are slower. Releases from Ford indicate production schedules announced some weeks ago are not being maintained. The general volume of strip business for the week was near the lowest point of the year. Cold-rolled strip is held at 2.00c, base, Cleveland, and as anticipated, fender stock has been reaffirmed at 2.90c for third quarter. More makers are quoting 1.45c, Pittsburgh, on hot-rolled in all widths, with 1.50c applying on small lots.

Chicago—Strip specifications are lighter, automotive releases being spotty and less active. Mill operations are lower at slightly below 20 per cent. Interest in third quarter requirements is light. The new single price of 1.60c, Chicago, and new extras scheduled to become effective next month.

Steel Rate Holds at 17 Per Cent; May Ease Further

Pittsburgh—Steel ingot operations last week were averaging 16 per cent, down a fraction of a point. There is no indication of any change this week. A large producer here is running some lower than a week back. One smaller producer is contemplating open-hearth shutdown during July. Sheet mill operations are barely holding at 20 per cent, with strip around 15. Pipe production is unchanged. Blast furnace operations involve 4 stacks out of 38 for United States Steel Corp., 3 out of 12 for Jones & Laughlin Steel Corp., and 1 out of 2 for Pittsburgh Crucible Steel Co.

Operations, week ended June 18	**17**
Operations, week ended June 11	**17**
Operations, week ended June 4	**21**
Operations, one year ago	**38**
High for 1932, Feb. 6	**28.5**
Low for 1932—June 11-18	**17**

Philadelphia — Eastern steelmaking operations are slightly easier at 11-13 per cent. Little, if any, immediate change is contemplated.

Buffalo—Three open hearths out of 37 are scheduled this week, an 8 per cent rate. Six units operated most of last week.

Youngstown, O.—Steel production in the week ended June 18 was up three points to 22 per cent and is expected to hold at, or slightly above, that level this week. Twenty-four of the 83 open hearths are melting. Higher scrap shipments suggest an operating gain within two weeks.

Cleveland—Steel ingot production was at 29 per cent during the week ended June 18, and is scheduled for the same rate this week. American Steel & Wire Co. has five units active, Corrigan, McKinney Steel Co. three, and Otis Steel Co. two. Finishing mill operations are slower. Bar mill operations are at about 25 per cent.

Chicago—Although ingot production held during the past week at about 18 per cent, no improvement is in prospect for this week and a further slight recession is not unlikely. A portion of current steel output is being stocked at some mills despite the low level of production. One leading producer is at only slightly above 10 per cent. Blast furnace schedules remain at eight active steelworks stacks out of 36.

Birmingham, Ala.—Based on ingot production steel mills operations here are about 19 per cent. Gulf States Steel Co. open hearths have been idle. Four and five open hearths of Tennessee Coal, Iron & Railroad Co. at Fairfield have been producing.

Spiegeleisen Price May Not Be Adjusted

Ferroalloy Prices, Page 50

New York—No reduction has yet been announced on spiegeleisen and in some quarters it is believed now that no change will be made, despite the recent drop in ferromanganese. Domestic spiegeleisen, 19 to 21 per cent, is $27, furnace. Ferromanganese is $68, duty paid, in carlots, with specifications coming out slowly.

Pittsburgh—The recent reduction in ferromanganese to $68 has not appreciably changed the small volume of business. Domestic producers hope that this reduction will eliminate imports of foreign material. Specifications on other ferroalloys continue light. Pending action by the largest producer, spiegeleisen remains $27.

Chicago—Activity in ferroalloys is tending downward slightly. Shipments of ferromanganese to some mills are being made against weekly instead of monthly releases. The spot market is quiet. Prices are unchanged at $68, duty paid, for ferromanganese and $27 for spiegeleisen.

Castings Buying in Gain

Gray Iron institute, Cleveland, summarizing reports of members for April, states that production was maintained at approximately the same rate as in March, which was a gain over February. New business, unfilled orders, material received and material on hand all show increases over March, new business showing an increase of almost 50 per cent.

Greatest activity was shown in the Chicago district and class A plants made the greatest gains.

Raw Material Prices

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago, furnace	$16.00
Pittsburgh, dist. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.50
Philadelphia, delivered	14.26 to 14.76
Virginia furnace	17.50
Granite City, Ill., fur.	16.50 to 17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	18.91 to 19.91
Buff., all-rail, Brooklyn	18.90 to 19.40
Buff., all-rail, Newark	17.28 to 17.78
Ala., Bir. fur., local del.	11.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. L.	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock del.	15.00
Alabama, New York dock	15.50
Ala., Boston dock del.	15.75 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	16.50
Buff., all-rail, Brooklyn	19.40 to 19.90
Buffalo, all-rail, Newark	17.78 to 18.28
Buff., all-rail, Boston	19.91 to 20.91
Virginia furnace	18.00
Eastern, del. Phila.	14.76 to 15.26

FOUNDRY, NO. 1X

Buffalo fur., local del.	17.50
Eastern, del. Phila	15.26 to 15.76

MALLEABLE

Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.50
Pittsburgh dis. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Chicago, furnace	16.00
Buffalo fur., local del.	16.50
Eastern Penna., delivered	16.13 to 19.41
Granite City, Ill., fur.	16.50 to 17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	14.50 to 15.00
Pittsburgh, delivered	15.13 to 16.13
Eastern Penn., del.	14.50 to 15.00
Buffalo fur., local del.	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	14.00

BESSEMER

Valley furnace	14.50 to 15.00
Pittsburgh, furnace	15.00
Pittsburgh, delivered	15.63 to 16.13

LOW PHOS.

Valley fur., standard	25.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	14.00
Pittsburgh district fur.	15.00
Pittsburgh, delivered	15.63 to 16.13

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19.50; 15—$23 to $24.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 15—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

Coke

Prices Per Net Ton

Beehive Ovens

Connellsville furnace	$2.00 to 2.25
Connellsville foundry	3.00 to 4.25
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.21 to 8.81
Chicago, ovens	7.00
New England, del.	10.00
St. Louis, del.	7.75
Birmingham, ovens	4.50
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	4.50
Portsmouth, O., ovens Connell., basis	4.50
Buffalo, ovens	7.50 to 8.00
Detroit, ovens	8.00
Philadelphia, del.	8.50

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports	
Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	7.50
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.50 to 9.00
North African low phos.	7.50 to 8.50
Swedish basic, 65%	7.50 to 8.00
Swedish low phos.	9.00
Spanish, North African basic, 50 to 60%	7.00 to 8.00
Newfoundland fdy., 55%	8.00
Tungsten, spot, short ton unit, duty paid	$10.25 to 10.50
Chrome ore, 48% gross ton c.i.f.	$17.00 to 18.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	24 cents
South African, 52%	22 to 23 cents
South African, 49-51%	21 to 22 cents
South African, 44-47%	20 to 21 cents
Indian, 48-50% (nom.)	22 cents
Brazilian, 46-48% (nom.)	18 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$35.00
Missouri	35.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 30.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	$35.00
Joliet, Ill., East Chicago, Ind.	47.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$61.50

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.00
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$26.00
Pittsburgh, bessemer	26.00
Youngstown	26.00
Cleveland	26.00
Philadelphia	32.75
Chicago	28.00
Forging, Chicago	33.00 to 34.00
Forging, Pittsburgh	33.00
Forging, Philadelphia	38.75 to 39.75

SHEET BARS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00
Chicago	28.00

SLABS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00

WIRE RODS

Pittsburgh, Cleveland	$37.00
Chicago	38.00

SKELP

All grades, Pittsburgh	1.50c to 1.60c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$68.00
*Ferromanganese, del. Pittsburgh	73.24
Spiegeleisen, 19-20%, domestic fur. spot†	27.00
Ferrosilicon, 50 per cent, freight all., c. l.	77.50
Do, less carload	85.00
Do, 75 per cent	126.00 to 136.00
Silicomang., 2½% carb.	105.00
2% carbon	110.00
1% carbon	115.00
(Spot prices, $5 a ton higher.)	
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. lb. con. del.	10.00
Do, for spot delivery	10.50
Ferrotungsten, stand., lb. cont.	1.00 to 1.10
Ferrovanadium, 30-40 per cent, per lb. contained, on analysis	3.05 to 3.30
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis; 18%, $2 unitage	68.00
Ferrophosphorus, electrolytic per ton carload, 23-26% f.o.b. Anniston, Ala.; 24%, $4.25 unitage	91.00
Ferromolybdenum, stand. 50-60 per cent. per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molybdate, lb. cont.	.80

†Carloads. Differentials apply to quant.
*To users of carloads to 1000 tons annually. Differentials to large users.

Fluorspar

85 and 5 per cent grade

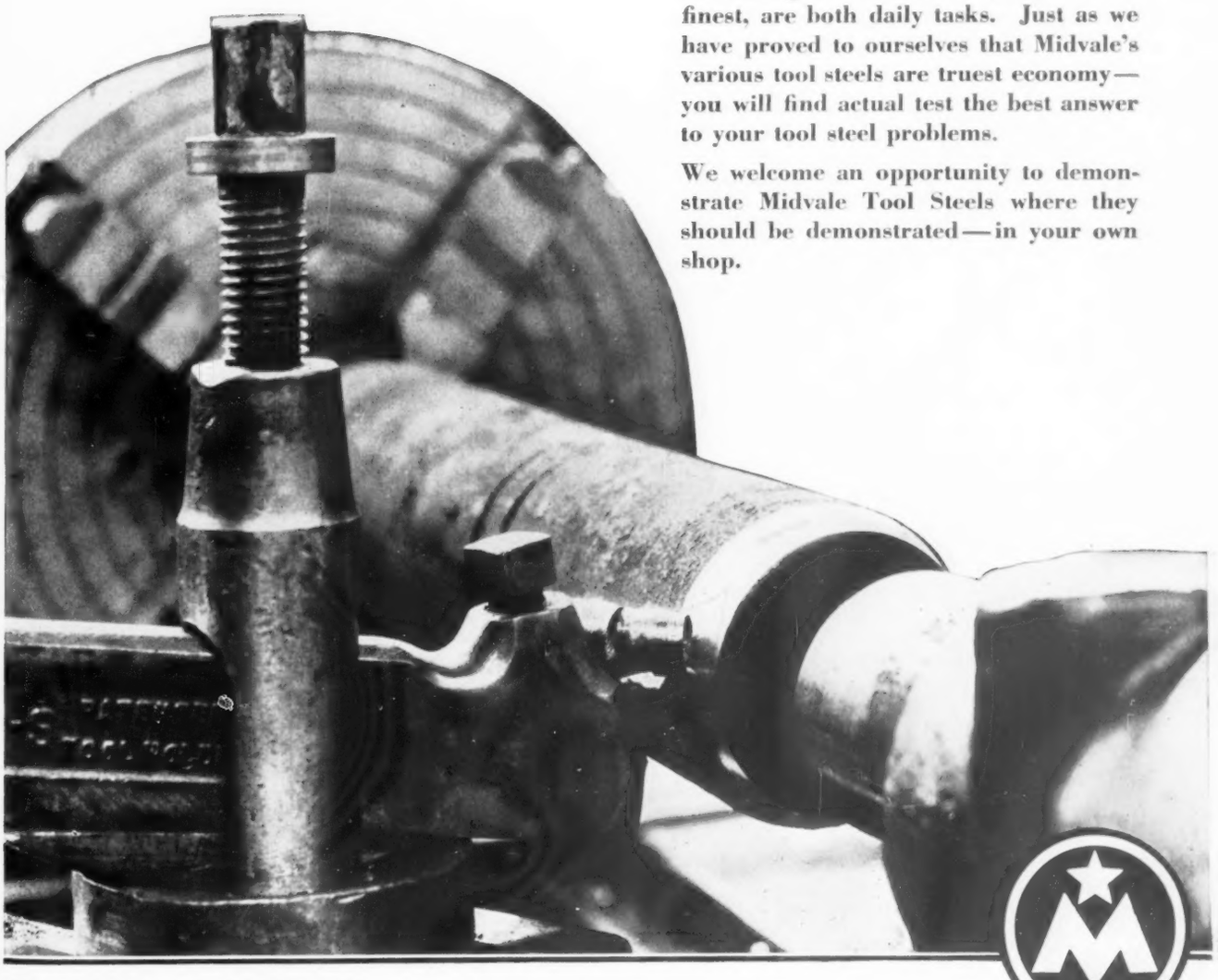
Washed gravel, domes., net ton, del. Pitts. equiv.	$20.31
Washed gravel, import duty paid tide. gross ton	19.50

MIDVALE TOOL STEEL

For rough hogging, for fine machining, you ask two things of your tool—a cutting edge that gives quality results, a toughness that avoids interruptions to the work.

These are the two qualities Midvale must have in her own shop operations, where machining of the heaviest, and of the finest, are both daily tasks. Just as we have proved to ourselves that Midvale's various tool steels are truest economy—you will find actual test the best answer to your tool steel problems.

We welcome an opportunity to demonstrate Midvale Tool Steels where they should be demonstrated—in your own shop.



THE MIDVALE COMPANY
Philadelphia, New York, Pittsburgh, Washington, Cleveland, Chicago, San Francisco.

Pig Iron

Pittsburgh Market Down 50 Cents—No Merchant Valley or Pittsburgh Stack Active

PIG IRON PRICES, PAGE 50

Pittsburgh—Carload pig iron orders are becoming less frequent, and competition of Cleveland and valley producers in outlying Pittsburgh districts still is probably the chief feature in the market. No merchant furnaces now are producing in this or the valley district, as the Neville Island stack has been temporarily banked. Scattered carload sales indicate $15, Pittsburgh district furnace, as the base price for foundry, malleable and bessemer, a reduction of 50 cents from the recent level. A single price of $14, base, valley, is now representative for basic iron, instead of the recent spread of $14 to $14.50.

Boston—Pig iron sales are light, New England foundries operating under 20 per cent. The local furnace and sellers of Indian iron are taking the majority of orders. Indian No. 2X is quoted $16 to $16.50, dock, duty paid, while the local producers range is $16 to $17, furnace. New England Freight association has docketed an increase on carload lots, minimum 56,000 pounds, from Boston to Barre and Montpelier, Vt., a proposed rate of $3.25 a gross ton against a present rate of $2.90.

New York—Except for 300 tons of foundry iron for the A. P. Smith Mfg. Co., Bloomfield, N. J., demand for pig iron is dull. Buffalo iron is $14 to $14.50, base, furnace, for eastern delivery, with the lower price the more representative. Eastern Pennsylvania foundry iron prices for delivery here are easy.

Philadelphia—Prices on eastern Pennsylvania iron are unchanged at $13.50 to $14, furnace, with southern iron $10, base. Continental iron continues to be reported under the eastern Pennsylvania market. Approximately 6000 tons of English iron arrived here June 12 on the MINCIO. This iron is understood to be for a Delaware river pipemaker, on a contract placed several months ago.

A cargo of approximately 6000 tons of Royal Dutch iron now is enroute to Philadelphia from abroad. This is pipe iron and will apply on contracts placed some time ago.

Buffalo—Demand for pig iron continues on a declining scale. Three blast furnaces are operating, two on basic.

Youngstown, O.—The valley pig iron is about as lifeless as it can be. An occasional sale of malleable and No. 2 foundry is made in lots of 50 to 100 tons.

Cleveland—Several foundries which have been operating part time are understood to be contemplating complete shutdown for July, and possibly longer. Sales in the local territory are more restricted; an occasional carload represents the business. A lake merchant furnace interest selling over a wider area, in Michigan, Indiana, western and southern Ohio, booked 2500 tons in the week, slightly less than in the week preceding. All sales and shipments are in small lots. The market is nominal at $15.50, base, furnace, for delivery in Cleveland, and $14.50 for delivery in outside competitive territory.

Cincinnati—Scattered carload orders for pig iron show a moderate increase. Automotive requirements have tapered.

Chicago—Pig iron buying is quiet and unchanged, but inquiry is slightly more active. Shipments so far this month have held closely to the May rate. Demand from farm implement manufacturers continues dull and operations of automotive partsmakers are spotty. The market on foundry and malleable iron still is untested, the nominal quotation continuing $16, furnace.

St. Louis—Seasonal activity is noted in the stove industry, several plants making new models running near single-shift capacity. Other foundry lines continue quiet, and their pig iron requirements are extremely light. A few sales were made in the past week, the largest 175 tons. Prices are steady.

Birmingham, Ala—Pig iron sales are limited to small lots. Only four blast furnaces are in operation in this district. Inquiry does not indicate early improvement.

Toronto, Ont.—Practically no change has been noted in the slow market conditions prevailing for several weeks. Melters will not buy ahead, and current requirements are held to occasional carloads.

Warehouse Volume and Price Show Little Change

Warehouse Prices, Page 61

New York—Warehouse volume continues light, demand being for small lots as a rule. New base prices for cold-finished steel are operative with further adjustments probable.

Boston—Volume of steel buying from warehouse is light and shows little improvement. Further adjustment of cold-rolled prices are expected in July. A new base of 3.55c, Boston, on rounds and 4.05c on flats is effective meanwhile.

Philadelphia—Some jobbers handling foreign steel have announced that all orders for this material of under 5 tons will take the regularly scheduled prices applying to domestic steel out of warehouse. This measure, it is believed, will prove important in stabilizing the market. General demand is quiet.

Baltimore—Jobbers have applied new schedules on cold-rolled steel, quoting 3.48c, base, for rounds and hexagons and 3.98c for flats and squares, plus quantity differentials. Reinforcing bars out of warehouse are off a quarter cent to 2.25c to 2.75c. General trading remains slack, with railroads and shipyards showing little interest and other large corporations cutting requirements.

Pittsburgh—Demand for steel products from warehouse last week was somewhat less than the week before although some products, such as sheets, are moving in an unchanged volume. Quoted prices are without change.

Detroit—Volume of buying is little changed from that of the past three months. Prices show no variation and consumers limit their purchases closely.

Cincinnati—Warehouse demand shows slight change, tonnage remaining light and individual orders small. Prices are steady.

Chicago—Sales for the first half of this month brought no improvement from the quiet of preceding weeks. Quotations are unchanged, the only revision in prospect being on hoops and bands.

St. Louis—Business of iron and steel warehouse and jobbing interests, while much below former years, is holding well up to expectations. Depleted consumer stocks are being reflected in a fairly steady flow of orders for small quantities of a broad variety of commodities.

The Minnequa plant of the Colorado Fuel & Iron Co., Pueblo, Colo., generates each month from two to three times as much electricity as is consumed by the entire city of Pueblo. During normal mill operations the plant generates approximately 7,000,000 kilowatt-hours a month and has a peak of 9,300,000 kilowatt-hours.

Scrap

Absence of Buying Forces All Prices Lower—Small Melt Is Causing Heavy Accumulation

Chicago—The scrap market is unsettled by absence of buying and sharply restricted rate of shipment against orders. Dealers have little occasion to purchase scrap to fill orders, and forced sales are bringing low prices. Quotations continue nominal but generally lower. The last purchase of heavy melting steel was made at $6.50, while dealers now are picking up odd lots at $5 and less. This market now may be quoted nominally at $5.25 to $5.75. Prices on other grades are proportionately lower but in many cases are not substantiated by actual sales.

Boston—Buying of steel and iron scrap is light and prices weak and largely nominal. No. 1 heavy melting steel is held at $5, delivered central Massachusetts, with sales re-

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	6.50 to 7.00
Boston, dealers	3.35 to 3.75
Buffalo, No. 1	6.50 to 7.00
Buffalo, No. 2	5.00 to 5.50
Chicago	5.25 to 5.75
Cleve., No. 1	6.50 to 7.00
Cleve., No. 2	6.25 to 6.75
Det., No. 1 deal.	4.75 to 5.25
Det., No. 2 deal.	2.75 to 3.25
E. Pa. del. mill	6.00 to 6.50
E. Pa. No. 2, del.	4.50
N. Y. deal, R. R.	4.00
N. Y. deal, No. 2	2.00 to 2.50
N. Y. deal, yd.	2.50 to 3.00
Pitts. No. 1	8.75 to 9.25
St. L. No. 1 sel.	6.00 to 6.50
Federal, Ill.	5.75 to 6.25
Granite City, Ill.	5.00 to 5.50
Valleys, No. 1	9.25 to 9.75

COMPRESSED SHEETS

Buffalo, dealers	5.00 to 5.50
Chi. (Factory)	4.50 to 5.00
Cleveland	6.50 to 7.00
Detroit, dealers	4.75 to 5.25
E. Pa. new mat.	5.00 to 5.50
Pittsburgh	8.50 to 9.00
Valleys	8.75 to 9.25

BUNDLED SHEETS

Buffalo	4.00 to 4.25
Cinci., deal.	4.50 to 5.00
Cleveland	6.00 to 6.50
Eastern, Pa.	5.00
Pittsburgh	7.50 to 8.00
St. Louis	1.50 to 2.00

SHEET CLIPPINGS LOOSE

Chicago	2.50 to 3.00
Cincinnati	2.50 to 3.00
Detroit, dealers	2.00 to 2.50
St. Louis	1.50 to 2.00

STEEL RAILS SHORT

Birmingham	11.00 to 11.25
Boston, dealers	4.00 to 4.50
Buffalo	9.00 to 9.50
Chicago (3 ft.)	7.00 to 7.50
Chicago (2 ft.)	7.50 to 8.00
Cinci., deal.	8.50 to 9.50
Detroit, deal.	7.50 to 8.50
Pitts. (open-hearth, 3 ft. and less)	10.50 to 11.00
St. Louis	7.50 to 8.00

STOVE PLATE

Birmingham	6.00 to 6.50
Boston, dealers	2.00 to 2.50
Buffalo	6.75 to 7.00
Chicago, net	4.50 to 5.00
Cinci., deal. net	3.25 to 3.75
Det., net deal.	2.50 to 3.00
Eastern Pa.	6.00
N. Y., deal, mill	2.50 to 3.00
St. Louis	5.50 to 6.00

COUPLERS, SPRINGS

Buffalo	9.00 to 9.50
Chicago	6.50 to 7.00
Eastern Pa.	7.50 to 8.00
Pittsburgh	9.25 to 9.75
St. Louis	7.00 to 7.50

ANGLE BARS—STEEL

Chicago	6.50 to 7.00
St. Louis	7.00 to 7.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	9.00 to 9.50
Cleveland bil. and bloom crops	9.00 to 10.00
Eastern Pa.	9.00 to 10.00
Pittsburgh billet bloom crops	11.00 to 11.50
Pitts., sheet bar crops	10.75 to 11.25

FROGS, SWITCHES

Chicago	5.50 to 5.75
St. Louis	6.00 to 6.50

SHOVELING STEEL

Chicago	5.50 to 5.75
Cleveland	6.25 to 6.50
St. Louis	6.00 to 6.50

RAILROAD WROUGHT

Birmingham	6.00 to 6.50
Boston, dealers	2.00 to 2.50
Buffalo, No. 1	4.25 to 4.75
Buffalo, No. 2	6.50 to 7.00
Cinci., No. 2	4.50 to 5.00
Chicago, No. 1	4.50 to 5.00
Chicago, No. 2	5.25 to 5.75
Eastern, Pa.	6.00 to 6.50
N. Y., No. 1, deal.	2.50 to 3.00
Pitts., No. 2	8.75 to 9.25
St. Louis, No. 1	4.50 to 5.00
St. Louis, No. 2	6.00 to 6.50

SPECIFICATION PIPE

Boston	4.00 to 4.25
Eastern Pa.	8.00 to 8.50
N. Y., deal.	2.50 to 3.00

BUSHELING

Buffalo, No. 1	5.00 to 5.50
Chicago, No. 1	4.25 to 4.75
Cinn., No. 1 dl.	3.75 to 4.25
Cinn., No. 2	2.25 to 2.75
Cleve., No. 2	4.00 to 4.25
Det., No. 1 new deal.	3.25 to 3.75
St. L., No. 1	3.50 to 4.00
Val. new No. 1	8.25 to 8.75

MACHINE TURNINGS

Birmingham	3.25 to 3.50
Boston, dealers	0.50 to 1.00
Buffalo	3.50 to 4.00
Chicago	2.00 to 2.50
Cin., deal.	2.75 to 3.25
Cleveland	3.00 to 3.50
Detroit	1.75 to 2.25
Eastern, Pa.	3.50 to 4.00
N. Y., deal	1.35 to 1.50
Pittsburgh	5.00 to 5.50
St. Louis	1.50 to 2.00
Valleys	6.50 to 7.00

BORINGS AND TURNINGS For Blast Furnace Use

Boston, dealers	.60 to .75
Buffalo	4.00 to 4.50
Cinn., deal.	2.75 to 3.25
Cleveland	3.50 to 4.00
Detroit, deal	2.25 to 2.75
Eastern Pa.	3.00 to 3.50
N. Y., deal	1.35 to 1.50
Pittsburgh	5.50 to 6.00

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	3.25 to 3.50
Boston, chem.	5.00 to 5.50
Boston, dealers	1.00 to 1.25
Buffalo	4.00 to 4.50
Chicago	2.00 to 2.50
Cinn., deal.	2.75 to 3.25
Cleveland	3.50 to 4.00
Detroit, deal.	2.25 to 2.75
Eastern Pa.	3.00 to 3.50
E. Pa., chem.	8.00 to 10.50
N. Y., deal.	1.50 to 2.00
Pittsburgh	5.50 to 6.00
St. Louis	3.25 to 3.75

PIPE AND FLUES

Cinn., deal.	3.00 to 3.50

RAILROAD GRATE BARS

Buffalo	4.00 to 4.50
Chicago, net	4.50 to 5.00
Cincinnati	4.25 to 4.75
Eastern Pa.	6.00
N. Y., deal.	3.50 to 4.00
St. Louis	4.50 to 5.00

FORGE FLASHINGS

Boston, dealers	2.50 to 3.00
Buffalo	4.00 to 4.50
Cleve. ov. 10 in.	6.50 to 7.00
Detroit	3.50 to 4.00

FORGE SCRAP

Boston, dealers	2.00 to 2.25
Chicago	7.00 to 7.50
Eastern Pa., del.	5.00 to 5.50

ARCH BARS, TRANSOMS

Chicago, net	4.50 to 5.00
St. Louis	6.00 to 6.50

AXLE TURNINGS

Boston, deal.	6.00 to 6.50
Buffalo	6.50 to 7.00
Chi., elec. fce.	4.50 to 5.00
Cleveland	6.50 to 6.75
Eastern Pa., del.	6.00
Pittsburgh, O. H.	7.50 to 8.00
St. Louis	5.00 to 5.50

STEEL CAR AXLES

Birmingham	10.50 to 11.00
Boston, ship. pt.	8.25 to 8.75
Buffalo	10.00 to 10.50
Chicago	9.00 to 9.50
Eastern Pa.	14.50 to 15.00
St. Louis	9.00 to 9.50

SHAFTING

Boston, ship. pt.	8.50 to 9.00
N. Y., deal.	6.50 to 7.00
St. Louis	7.50 to 8.00
E. Penna.	13.00 to 14.00

CAR WHEELS

Birming., iron	7.50 to 8.00
Boston, iron deal.	4.00 to 4.50
Buffalo, iron	7.00 to 8.00
Buffalo, steel	8.00 to 8.50
Chicago, iron	5.75 to 6.25
Chi., rolled steel	6.25 to 6.75
Cincinnati iron	6.75 to 7.25
E. Pa. steel	7.50 to 8.00
E. Pa. iron	9.00 to 9.50
Pitts. iron	9.50 to 10.00
Pitts., steel	9.25 to 9.75
St. Louis, iron	5.50 to 6.00
St. Louis, steel	6.50 to 7.00

NO. 1 CAST SCRAP

Birmingham	7.00 to 7.50
Buffalo (Mach.)	9.00 to 9.50
Buffalo, cupola	8.00 to 8.50
Boston, textile	7.50 to 8.00
Chicago, mach.	6.15 to 6.70
Chi., railroad	5.60 to 6.15
Chicago, agri.	5.30 to 5.90
Cinn., mach. cup.	7.50 to 8.00
Cleve. cupola	6.50 to 7.00
Det., net deal.	6.75 to 7.25
E. Pa. cupola	9.00
N. Y. cup. deal.	6.00 to 6.50
N. Y., del. local foundries	7.50 to 8.00
Pitts., cupola	9.00 to 9.50
San Fran., del.	13.50 to 14.00
Seattle	5.00 to 7.50
St. L. No. 1 ma.	6.50 to 7.00
St. L., No. 1	6.00 to 6.50

HEAVY CAST

Boston, del.	3.00 to 3.50
Bost., mach. cast	7.00 to 7.50
Buffalo, break	5.50 to 6.00
Cleve., break	3.50 to 4.00
Detroit, auto, net deal.	8.00 to 8.50
Det., break., dl.	4.00 to 4.50
Eastern Pa.	7.50 to 8.00
N. Y. No. 1, dl.	4.00 to 4.25
N. Y. break, dl.	3.50 to 4.00
Pittsburgh	7.75 to 8.25

MALLEABLE

Boston Consum.	6.00 to 6.25
Buffalo	8.00 to 8.50
Chicago, agri.	5.25 to 5.75
Chicago, R. R.	6.00 to 6.50
Cinci., R. R., del.	7.50 to 8.00
Cinci., agri. del.	7.00 to 7.50
Cleveland, rail	7.50 to 8.00
Det. auto deal.	5.00 to 6.00
St. Louis, rail	5.50 to 6.00

RAILS FOR ROLLING 5 feet and over

Birmingham	8.50 to 9.00
Boston, deal.	5.50 to 6.00
Buffalo	7.00 to 7.50
Chicago	7.50 to 7.75
Eastern Pa.	9.50
New York dealer	4.25 to 4.75
St. Louis	8.00 to 8.50

LOCOMOTIVE TIRES

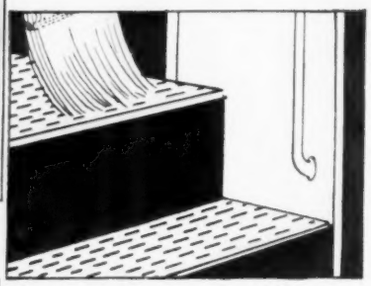
Chicago, cut	7.00 to 7.50
St. L., No. 1	6.00 to 6.50

LOW PHOS. PUNCHINGS

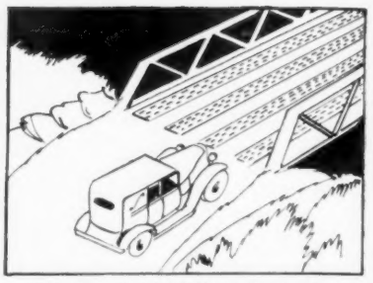
Chicago	7.00 to 7.50
Buffalo	9.00 to 9.50
Eastern Pa.	9.50 to 10.00
Pittsburgh	9.50 to 10.00

Makes every step sure-footed

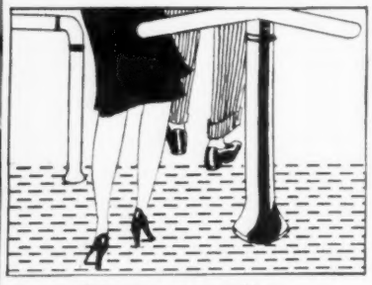
ILLINOIS FLOOR PLATE



Cleans easily from any direction

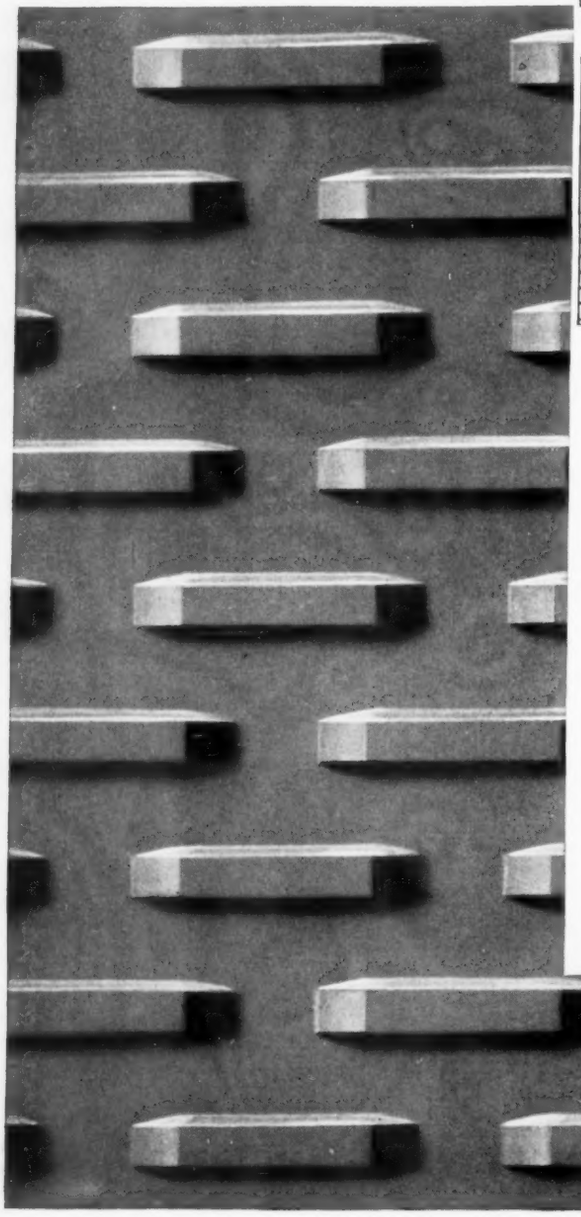


Reduces skidding dangers



It's easy to walk on

Drains rapidly



Illinois Floor Plate is furnished in the following dimensions:

THICKNESS—3 16″ to 3/4″, exclusive of raised figure.

WIDTHS—6″ to 84″.

LENGTHS—On widths from 6″ to 15″, 120″ maximum.
On widths from 16″ to 29″, 240″ maximum.
On widths 30″ or above, 480″ maximum.

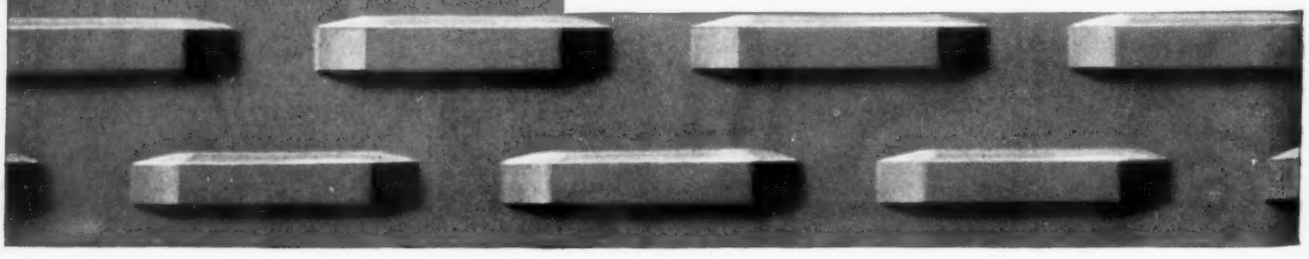
WEIGHTS—8.8 to 31.7 pounds per square foot.

U·S STEEL

Illinois Steel Company

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

208 So. La Salle St., Chicago, Illinois



ported at $4.75. Dealers are offering as low as $2.50 for No. 2 cast scrap. Borings and turnings are in small demand. No. 1 railroad wrought has been bid as low as $2.00 to $2.50 by dealers. Malleable and shafting users are out of the market.

New York—Stove plate foundry has brought $5.75, delivered West Mahwah, N. J., with dealers offering $2.75 to $3. No. 1 steel for barge loading has slumped to $4 and heavy breakable cast is down to $3.50, dealers' buying prices. Volume is light and prices on most grades are nominal.

Philadelphia—Scrap buying continues negligible, although some revisions in prices are noted. No. 1 railroad wrought is now $6 to $6.50, delivered; cast wheels, $8.25 to $8.75; and heavy breakable cast, $7.50 to $8.

Pittsburgh—There is every prospect that no large mill purchase by the leading interest here will be made this month. Quotations on most steel scrap items, while unchanged, are covering what is felt to be a weaker market as a purchase probably would bring a lower price. Especially is this true of heavy melting steel, which is known to have been offered to one user without success at lower than the published spread of $8.75 to $9.25. Some anticipated activity in heavy breakable cast has subsided in view of failure of a proposed order by one interest. According to plans at present one independent steelmaker here plans to shut down its producing capacity the entire month of July.

Buffalo—Scrap prices are being revised downward. There is no demand for any material and shipments are not being accepted. Lower prices fail to tempt consumers.

Cleveland—Shipments of steel and iron scrap are irregular and light, consisting almost entirely of heavier steel grades. Cast grades, borings and turnings are almost lifeless. Nominal quotations are unchanged.

Detroit—In the absence of trading, except small lots, prices are unchanged and largely nominal. Demand is negligible and production is light.

Cincinnati—Prices of iron and steel scrap remain weak even at reduced quotations as buying interest has disappeared. Several mills are accepting clippings but demand a bargain price on purchases. Lack of sustained demand for railroad material has caused some carryover on the monthly lists.

St. Louis—With steelworks activity and foundry operations at a low ebb, demand for iron and steel scrap is virtually at a standstill. Sales include only an occasional carlot of special material for immediate use. Shipments as a whole have declined since June 1, with a number of plants asking that all forwardings be temporarily halted.

Birmingham, Ala.—With practically no exceptions dealers have no instructions for delivery on iron and steel scrap. Steady consumers of heavy melting steel in normal times indicate they have plenty of stock on hand and though prices are low there is no buying. No change in prices has been made.

Toronto, Ont.—Business in iron and steel scrap has dropped close to the minimum. Some sales are being made, but only in special lines. No. 1 machinery cast is moving regularly, while other lines are spotty to dull. Prices are unchanged.

Canadian Scrap

Dealers' Buying Prices

Per Gross Ton

MONTREAL

Iron axles	$11.00
Steel axles	10.00
Car wheels	8.00
Stove plate	8.00
Wrought pipe	2.00
Turnings	2.00
Heavy melting steel	6.00

TORONTO

Steel axles	7.00
Iron axles	7.00
Heavy melting steel	7.00
Turnings	2.00
No. 1 mach. cast (net)	9.00
Malleable (net)	7.00

Semifinished Advance Not Yet in Effect

Semifinished Prices, Page 50

Pittsburgh—Intentions of semifinished steel producers to quote $28 on sheet bars, billets and slabs for third quarter still are discussed, but the past week saw no actual orders to test that figure. In the meantime, shipments are quiet on the basis of the second quarter price of $26, Pittsburgh, with forging billets generally unimproved at $33. Wire rods are holding firmly at $37 a ton.

Cleveland—Buyers of sheet bars, billets and slabs have until July 1 to close at $26, base, Cleveland or Youngstown, O., after which several makers say their price will be $28, as announced several weeks ago. No inquiry has appeared for the third quarter.

Chicago—Semifinished steel producers are continuing recent prices of $28 for rerolling billets, slabs and sheet bars into third quarter. Forging billets are $33, with wire rods $38.

Coke

Foundry Shipments Holding Up —Furnace Grades More in Demand for Water Gas Producers

COKE PRICES, PAGE 50

Pittsburgh—Demand for furnace coke showed improvement last week, in specifications from several water gas producers. Contrary to a slowly declining trend in foundry pig iron, foundry coke shipments are fairly comparable with those during earlier months this year. Foundry coke holds at $3 to $4.25, depending upon grade. Furnace coke is $2 to $2.15, although the market is largely nominal.

Boston—By-product coke shipping specifications are light, with New England foundries scarcely averaging 20 per cent. Prices are unchanged at $10, delivered.

New York—A slight increase in coke specifications is noted, although this appears to be a flurry, as melting operations are under 15 per cent. Beehive furnace coke is $1.50 to $2, Connellsville, for the heating grades, and $2 to $2.25 for smelting quality. Beehive foundry coke is unchanged at $3 to $4.25, ovens, depending upon the grade. By-product foundry coke is $8.21 to $8.81, delivered Newark, N. J.; $10, New England; and $8.50, Philadelphia.

Cincinnati—Shipments of by-product foundry coke are holding up well at a rate which indicates heavier tonnage than last month. Quotations are unchanged.

St. Louis—Metallurgical coke shipments so far this month have fallen slightly below the comparative period last month. Some foundries have suspended deliveries due them on contracts. No advance orders have developed recently.

Birmingham, Ala.—Demand for coke continues slow, all orders small and for immediate shipment.

Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 5.75c, Conn., for copper

Sheets	
Yellow brass (high)	12.00
Copper, hot rolled	15.12½
Lead sheets, cut, to jobbers	6.50
Zinc sheet (100-lb. base)	9.00
Tubes and Pipes	
Seamless yellow brass (high)	15.25
Seamless copper	14.37½
Rods	
Yellow brass (high, full turnings)	9.75
Naval brass	10.87½
Anodes	
Copper untrimmed	11.75
Wire	
Yellow brass (high)	12.00

Old Metals

Dealers' buying prices, cents lb.

No. 1 Composition Red Brass	
New York	2.75 to 2.87½
Chicago	1.87½ to 2.00
Cleveland	2.25 to 2.50
St. Louis	2.25
Heavy Yellow Brass	
New York	1.75 to 1.87½
Heavy Copper and Wire	
New York	3.62½ to 3.87½
Chicago	2.50 to 2.62½
Cleveland	2.25 to 2.75
St. Louis	2.75
Composition Brass Borings	
New York	2.25 to 2.50
Yellow Brass Tubing	
Cleveland	1.25 to 1.50
Light Copper	
New York	2.75 to 3.00
Chicago	2.00 to 2.25
Cleveland	2.00 to 2.25
St. Louis	2.25
Light Brass	
Chicago	1.00 to 1.25
Cleveland	1.00 to 1.25
St. Louis	1.25
Lead	
St. Louis	2.00
Zinc	
New York	0.75 to 1.00
Cleveland	0.87½ to 1.00
St. Louis	1.00
Aluminum	
Clippings, new, soft, Cleve.	9.00 to 9.50
Clippings, hard, Cleveland	6.50 to 7.00
Borings, Cleveland	2.50 to 3.00
Mixed cast, Cleveland	3.00 to 3.50
Mixed cast, St. Louis	2.50 to 3.00

Secondary Metals

Remelt, aluminum No. 12	7.00 to 8.00
Brass ingots, 85-5-5-5	6.00

Metals

Demand in General Light with Lead Most Active—Copper Tone Better but Prices Hold

New York—Lead was the most active of the metals last week although no buying movement was in progress. All quotations remained fairly steady with the exception of tin.

Copper—The 4-cent duty which becomes effective June 21 has given the market a stronger tone. Last week, however, electrolytic metal could be had for delivery through third quarter at 5.37½c, Connecticut. This price also applied to fourth quarter on offerings of one interest although the general tendency was to ask a premium of ⅛-cent. Consumers continued to take an apathetic attitude toward future requirements. May stocks were reported to have increased somewhat but with curtailment now being effected the situation is expected to show improvement. Some division of Copper Exporters Inc. probably will result from the copper tariff.

Lead—June requirements of most consumers now are about filled as well as a major portion of July needs. Refined lead stocks increased sharply in May, but with several plants now out of production, are expected to be materially reduced this summer. Prices held steady.

Zinc—Demand was extremely light last week with only scattered carlots booked. Prices, however, held steady with no indications of shading evident.

Tin—Liquidations abroad following the failure of the London firm, Lewis Lazarus & Sons, resulted in an easiness in quotations. Demand here continued light. One automobile producer came into the market for a carlot. Under new restriction plans, production is expected to be cut to the rate of 54,000 tons annually.

Antimony—The range of prices was lower last week but this failed to attract increased interest on the part of consumers.

Aluminum — Business continued light although prices held steady.

Assets of American Steel Dredge Co., Fort Wayne, Ind., have been ordered sold by the court, in receivership.

Coke By-Products Steady; Shipments Still Small

New York—Distillate prices are firm, due largely to continued low output. Toluol is the strongest of the group, few distributors having supplies to meet demand for immediate shipment of sizable lots. Phenol buying is spotty at unchanged prices. Small lots predominate shipments.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26
Per Pound at Producers' Plants	
Phenol	0.153 to 0.173
Per Pound at Producers' Plants in	
Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75
Per 100 Pounds Atlantic Seaboard	
Sulphate of ammonia	$1.00

Napthalene is firm, with a fair spot demand.

Quicksilver Is Lower

New York — Quicksilver prices have weakened here this week, with flasks available at $60 each. Buying continues dull. Recent declines in the European market have contributed to the weakness. It is reported supplies abroad are sufficient to meet the American market's needs for five years or more.

Nonferrous Metal Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
June 11	5.37½	5.87½	5.12½	19.75	20.30	3.00	2.90	2.80	22.90	5.00	35.00
June 13	5.37½	5.87½	5.12½	19.70	20.25	3.00	2.90	2.80	22.90	5.00	35.00
June 14	5.37½	5.87½	5.12½	19.00	19.55	3.00	2.90	2.80	22.90	5.00	35.00
June 15	5.37½	5.87½	5.12½	19.25	19.75	3.00	2.90	2.80	22.90	5.00	35.00
June 16	5.37½	5.87½	5.12½	19.25	19.70	3.00	2.90	2.80	22.90	5.00	35.00
June 17	5.37½	5.87½	5.12½	19.50	19.95	3.00	2.90	2.80	22.90	5.00	35.00

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STEEL SHEETS FOR EVERY PURPOSE

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Meeting today's diverse demands for sheet steel requires the manufacture of numerous grades in varying degrees of finish, and other distinctive qualities. It is reassuring to buyers and users to know that under one modern brand, AMERICAN, can be obtained a complete line of Sheet and Tin Mill Products for all uses to which sheet metal is applicable.

This Company manufactures high grade Black and Galvanized Sheets, Formed Roofing and Siding Products, Automobile Sheets, Steel Furniture Sheets, Electrical Sheets, Special Sheets, Tin and Terne Plates for all known uses—also Keystone Rust Resisting Copper Steel products. Write for full information on USS STAINLESS Steel Sheets and Light Plates.

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FEDERAL SHIPB'LDG. & DRY DOCK CO.
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TENNESSEE COAL, IRON & R.R. COMPANY
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Europe

British Pig Iron Duty Raised To 33 1/3 Per Cent—Trade In Steel Is at Lower Rate

London—(By Radio)—Tariff duties on pig iron have been increased from 10 to 33 1/3 per cent, except that smelted wholly with charcoal. The same increase has been made on castings under 112 pounds and spring steel. Wrought iron bars puddled with charcoal from pig iron smelted with charcoal and rolled strip over 10 inches wide in coils over 336 pounds have been reduced from 33 1/3 to 10 per cent. Although relief is expected from this higher duty on pig iron, sentiment is somewhat despondent and the markets are depressed.

Production of pig iron in May was 315,300 tons from 69 stacks, a daily rate of 10,170 tons, compared with 316,900 tons from 69 stacks, a daily average of 10,563 tons, in April. Steel production in May was 416,900 tons, compared with 433,300 tons in April. Imports of iron and steel in May were 144,013 tons, April 144,535 tons; exports were 151,325 tons, April 180,436 tons.

Continental export markets show no improvement, some works retiring because low quotations have reduced output. Germany has booked some British-American and South American orders. French industry is anxious.

Pacific Coast

Structural Awards Make Most of Movement on Coast

San Francisco—*(By Air Mail)*—Movement of steel products on the Pacific Coast, for the most part, is in unimportant lots, although structural shape awards were the second largest for any week so far this year, including 1000 tons for the Dairy Delivery plant in San Francisco, to McClintic-Marshall Corp., and 475 tons of reinforcing steel bars for two bridges for Los Angeles county, booked by the Pacific Coast Steel Corp. Prices appear to be holding fairly firm at levels recently established.

Soule Steel Co. was awarded 190 tons of reinforcing bars for the Telegraph Hill Memorial, San Francisco. New inquiries include 595 tons for two bridges in Ventura County, Calif., and 330 tons for a crossing at Del Mar, Calif., bids on both of which will be opened June 29. Los Angeles out-of-stock prices have advanced and 2.10c, base, on carload lots prevails. Prices in the San Francisco district are general at 2.50c, base. Merchant bar steel holds at 2.10c, c.i.f.

Judson-Pacific Co. booked 150 tons of shapes for the Grant store in Oakland, Calif., and the Kyle Steel Construction Co. secured 488 tons for two bridges in Los Angeles over the Rio Honda and Los Angeles rivers. Bids will be opened June 28 for 100 tons for a post office at Las Vegas, Nev. Plain standard shapes hold at 2.10c, c.i.f., while wide flange material is quoted at 2.20c.

Pipe Tonnage Is Let

R. D. Wood & Co. has booked 1225 tons of cast iron pipe for the Marin municipal water district, San Rafael, Calif. Bids will be opened June 20 for 600 tons for Hamilton Field, Marine Meadows, Calif. Upland, Calif., will open bids this week for 115 tons of 6-inch pipe.

Distributors in the San Francisco district have advanced out-of-stock prices on bars, plates and shapes from 3.15c to 3.25c.

Public Works Dominate

Seattle—Pacific Northwest demand for iron and steel products remains subnormal. There is little industrial activity, steel contracts being largely for federal and state projects. County and municipal construction is handicapped by inability to finance.

The new wholesale price list, effective this week here and in Portland territory, has given the jobbing trade a somewhat firmer tone. Price levels are still under California but it is hoped to reach a parity when conditions warrant.

Poole & McGonigle, Portland, Oreg., have the structural subcontract, tonnage unstated, for the veterans' hospital group buildings at Roseburg, Oreg. On the same project, steel sash will be furnished by Truscon Steel Co. Some cast iron pipe business is pending, including 350 tons for two Seattle improvements. French interests have obtained the contract to furnish 100 tons of cast iron pipe for the Aurora avenue job, Seattle.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, June 9

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports		Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	
PIG IRON	£ s d		£ s d	£ s d
Foundry, 2.50-3.00 Silicon	$10.68	2 18 6	$ 8.75 to $ 9.23	1 16 0 to 1 18 0
Basic bessemer	10.22	2 16 0*	7.41 to 7.90	1 10 6 to 1 12 6
Hematite, Phos. .03-.05	11.50	3 3 0	.....	.....
SEMIFINISHED STEEL				
Billets	$17.79	4 17 6	$9.48	1 19 0
Wire rods, No. 5 gage	27.38	7 10 0	21.87	4 10 0
FINISHED STEEL				
Standard rails	$30.11	8 5 0	$28.55	5 17 6
Merchant bars	1.00c	6 2 6	.48c to .50c	2 4 0 to 2 5 0
Structural shapes	1.20c	7 7 6	.44c to .45c	2 0 0 to 2 1 0
Plates, †¼ in. or 5 mm	1.43c	8 15 0	.58c to .59c	2 13 0 to 2 14 0
Sheets, black, 24 gage or 0.5 mm.	1.30c	8 0 0	1.20c to 1.21c	5 9 0 to 5 10 0
Sheets, gal., 24 gage, corr.	1.57c	9 12 6	1.51c	6 17 6
Bands and strips	1.30c	8 0 0	.72c to .74c	3 5 0 to 3 7 6
Plain wire, base	1.55c	9 10 0	1.18c	5 7 6
Galvanized wire, base	1.87c	11 10 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	1.79c	11 0 0	1.21c	5 10 0
Tin plate, box 108 lbs.	$ 2.74	0 15 0	$3.20	0 13 2

British ferromanganese $72 to $75 delivered Atlantic seaboard, duty paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d		French Francs		Belgian Francs		Reich Marks	
Fdy. pig iron, Si. 2.5	$10.68	2 18 6	$ 8.65	220(2)	$ 8.79	315	$16.33	69
Basic bessemer pig iron	10.22	2 16 0*	7.27	185(1)	7.25	260	17.86	75.50
Furnace coke	2.42	0 13 3	4.87	124	4.05	145	4.54	19.20
Billets	18.25	5 0 0	14.54	370	10.18	365	22.83	96.50
Standard rails	1.37c	8 7 6	1.41c	785	1.57c	1,210	1.36c	127
Merchant bars	1.08c	6 12 6	.95c	530	.54c	415	1.18c	110
Structural shapes	1.43c	8 15 0	.99c	550	.54c	415	1.15c	107.50
Plates, †¼-in. or 5 mm	1.47c	9 0 0	1.17c	650	.70c	535	1.36c	127
Sheets, black	1.34c	8 5 0§	1.44c	800‡	.88c	675‡	1.54c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	1.55c	9 10 0	2.83c	1,570	1.78c	1,370	3.96c	370
Plain wire	1.55c	9 10 0	2.03c	1,130	1.95c	1,500	1.90c	178
Bands and strips	1.55c	9 10 0	1.04c	580	.88c	675	1.36c	127

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basis price.
British quotations are for basic open-hearth steel, Continental usually for basic-bessemer steel.

ACME STRIP STEEL

●Hot Rolled

Acme Hot Rolled Strip Steel is furnished in widths up to 22 inches wide in long length coils or straight cut lengths. It is supplied in mill finish, pickled and oiled, or pickled and limed. . . . . Hot Galvanized and Electro-Galvanized finishes are also obtainable in a wide range of sizes.

●Cold Rolled

Acme Cold Rolled Strip Steel is rolled in all the various commercial finishes, edges, tempers, and sizes up to 21½ inches wide, and furnished in long length coils or straight cut lengths. . . . . We specialize in Electro-Galvanized, Hot Galvanized, and Acme Stainless cold rolled strip. . . . . Write for catalog.

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POWER PLANT PIPING

Contains 40 pages of informative text, illustrations and other data of interest to the power plant engineer or anyone connected with power plant work. There are numerous tables and data on weights, dimensions and properties of pipe, saturated steam, superheated steam, flow of steam, insulation of pipes; also data on bends, fittings, etc.

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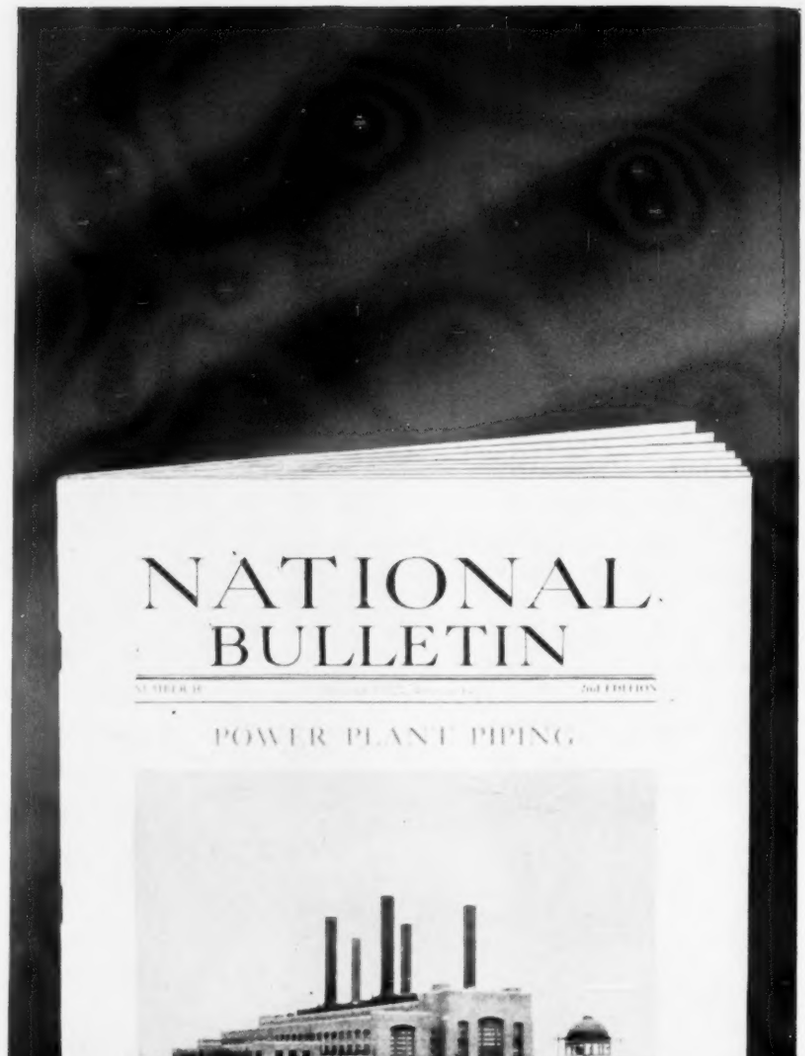

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QUALITY PRODUCTS — Dependable Service

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Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
⅛	58	44½	⅛	25	7
¼	62	50½	¾	30	13
1—3	64	52½	1—1¼	33	17
			1½—2	37	20

LAP WELD

2	57	45½	2	25	11
2½—6	61	49½	2½—3½	30	15
7—8	58	45½	4—6	32	19
9—10	56	43½	7—8	31	18
11—12	55	42½	9—12	28	13

BUTT WELD

Extra strong, plain ends

⅛	55	44½	¼ & ⅜	+11	+46
¾	60	49½	½	25	9
1—1½	62	51½	¾	30	14
2—3	63	52½	1—2	36	20

LAP WELD

Extra strong, plain ends

2	55	44½	2	31	15
2½—4	59	48½	2½—4	36	22
4½—6	58	47½	4½—6	35	21
7—8	54	41½	7—8	33	19
9—10	47	34½	9—12	23	10
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½ 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$32.00 to 33.00
Four-inch, Birmingham .... 36.00 to 37.00
Four-inch, Chicago ..... 38.40 to 42.40
Six to 24-inch, Chicago..... 34.40 to 38.40
Six-inch and over, N. Y..... 26.00 to 28.00
Four-inch, New York ..... 32.50 to 34.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	3.00c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.65c
Los. Ang.	3.30c
New York‡(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.60c
Portland	2.75c
San Fran.	3.25c
Seattle	3.00c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.25c

IRON BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	3.15c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.45c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.35c-3.00c
Boston	3.25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los. Ang. cl.	2.10c
Los Ang., lcl	2.40c
New York	2.65c-3.10c
Phila.	2.26½c
Pittsburgh	2.60c
San Fran. cl.	2.50c
San Fran. lcl	2.80c
Seattle	3.00c
St Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los. Ang.	3.30c
New York(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.85c
Portland	2.75c
San Fran.	3.25c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

PLATES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.30c
New York(d)	3.30c
Philadelphia	2.45c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	2.75c
San Fran.	3.25c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.50c
Buffalo	3.50c
Chattanooga	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.35c
Los Ang.	3.60c
N. Y.	3.00c
Portland	3.75c
Phila.*† (e)	2.90c
Pitts.**	3.00c
San Fran.	3.50c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.45c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.20c
Buffalo	4.10c
Chattanooga	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.25c
Detroit	3.50c
Los Ang.	4.20c
New York	3.75c-4.00c
Phila.*†(e)	3.40c
Pitts.**	3.40c
Portland	4.25c
San Fran.	4.05c
Seattle	4.50c
St. Louis	3.80c
St. Paul	3.695c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	4.75c
Buffalo	4.35c
Chattanooga	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	3.75c
Detroit	4.00c
Houston	4.25c
Los. Ang.	4.35c
New York	4.00c-4.10c
Phila.*†(e)	3.75c
Pitts.**	3.90c
Portland	4.75c
San. Fran.	4.55c
Seattle	5.00c
St. Louis	4.35c
St. Paul	4.19c
Tulsa	5.10c

BANDS

Baltimore	3.25c
Boston	3.75c
Buffalo	3.35c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	3.80c
New York(d)	3.40c
Philadelphia	2.75c
Pittsburgh	2.95c
Portland	3.25c
San Fran.	3.65c
Seattle	3.50c
St. Paul	3.20c
Tulsa	3.45c

HOOPS

Baltimore	3.25c
Boston	4.90c-5.40c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.55c
Det. No. 14 & lighter	3.65c
New York	3.75c
Philadelphia	3.00c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	3.75c

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.50c
Buffalo	2.95c
Chattanooga*	3.65c
Chicago	2.95c
Cincinnati	3.29c
Cleveland	2.95c
Detroit	3.17c
Los Ang. (a)	4.25c
New York	3.30c
Philadelphia*	3.10c
Pittsburgh	2.95c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)	3.20c
St. Louis	3.35c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.25c
Chicago (soft) (b)	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more.

(c) Plus mill, size and quantity extras.

(d) Minus quant. diff.

(e) New mill classif.

‡Domestic bars.

*Plus quan. extras.

**Less than 25 sheets.

*†50 or more bundles.

Machinery

OUTLOOK for the summer months in the machinery and equipment fields is far from encouraging despite occasional reports of improved conditions. Although a large potential demand for new equipment exists due to wholesale stripping of idle machinery, it is futile to predict when this demand will be released. An attitude of watchful waiting persists in most all lines, many contemplated projects being deferred until general conditions improve—making for a somewhat paradoxical situation. Government inquiries for equipment continue in fair volume, constituting about the only favorable factor in the market.

New York—Outside of openings this week and next on several sizable government machine tools lists, inquiry is light. Demand from private industry is poor with many plants operating on short schedules. Additional inquiry for government equipment includes a milling machine, engine lathe and horizontal universal milling machine.

Hoist orders in May decreased 26.923 per cent from the preceding month, with a decline in value of such orders of 30.221 per cent, according to the Electric Hoist Manufacturers association. Shipments were 18.679 per cent less than in April.

Worcester, Mass.—Demand for machine tools and equipment is listless with some of the largest shops operating with skeleton forces for the summer at least unless something unexpected develops. One plant, sharing recently in some Russian business, is curtailing, closing a fairly active run. Most builders until recently have kept engineering forces intact with the result that there is considerable new equipment ready for sales efforts once the turn in general business becomes pronounced.

Pittsburgh—Steel mill equipment and machine tool interests report a continuation of the dullness in orders that has persisted for some months. The outlook for the summer months is far from encouraging. Steel mill roll producers are experiencing difficulty in closing on consequential business. Ingot mold shipments are fairly well maintained. The plans of a district steelmaker to enlarge open-hearth capacity still are held in abeyance but it is reported that new figures on some materials to go into this work are being taken. A district fabricating interest is still withholding work planned for a continuous beam shop.

Cleveland—No change is reported in sales of machinery and equipment and although the potential demand is growing to enormous proportions, no one will venture a prediction as to when this will be released. Prices are holding fairly well despite demands of buyers for concessions. Occasional instances of improved business are heard, but the general trend continues undetermined.

Chicago—Sentiment in the market for machine tools and equipment is fairly good despite continued dullness in buying. The volume of the occasional orders being placed is unchanged and inquiries also lack improvement. Activity in small tools which had been fairly steady recently is slightly less active. Local sellers are receiving but little business from railroads, which apparently have restricted their purchases of equipment to a greater extent than have eastern carriers.

New Trade Publications

BALL BEARINGS—Auburn Ball Bearing Co., Rochester, N. Y., has compiled a data book on its ball thrust bearings of various types.

ALLOYS—Electro-Alloys Co., Elyria, O., has issued Bulletin No. 100 on its heat-resisting and corrosion-resisting alloys.

CIRCUIT BREAKERS—Roller-Smith Co., 233 Broadway, New York, in Catalog No. 5 shows its air circuit breakers, open and enclosed, attachments and accessories, relays and sectional steel switchboards and cubicles.

BOILERS—Foster-Wheeler Corp., 165 Broadway, New York, in Bulletin B-32-3 presents a catalog of various types of boilers in its line and indicates application of various types to complete steam generating units.

LATHES—Monarch Machine Tool Co., Sidney, O., in a current catalog shows its line of toolroom lathes. Illustrations are by unusual photography, showing the lathes and also tests of their accuracy.

LATHE—South Bend Lathe Works, South Bend, Ind., in Circular No. 8 describes its 8-inch small shop lathe. It is a backgeared, screw-cutting lathe for maintenance, repair, experimental and engineering work.

DIE-HEADS—Geometric Tool Co., New Haven, Conn., has issued two booklets, covering its self-opening die heads, rotary and stationary. Illustrations show details of construction and data are tabulated for each type.

RESISTORS—Electric Controller & Mfg. Co., Cleveland, in Bulletin 940A describes its type H nickel alloy resistors, with illustrations; in Bulletin 1100-A it presents its pressure and liquid level regulators for automatic control of air, gases and liquids.

RUBBER—B. F. Goodrich Rubber Co., Akron, O., has prepared for distribution a booklet on rubber, entitled *A Wonder Book of Rubber*. It is not offered as a scientific discussion but to give genereal information on the rubber industry.

HOT STRIP REELS—United Engineering & Foundry Co., Pittsburgh, in Bulletin No. N-301 presents its reels for reeling, coiling, winding, rewinding, recoiling and coil opening of hot-rolled metal strip in rolling mill work, roller bearing equipped, full automatic, semiautomatic and hand-operated. It is fully illustrated.

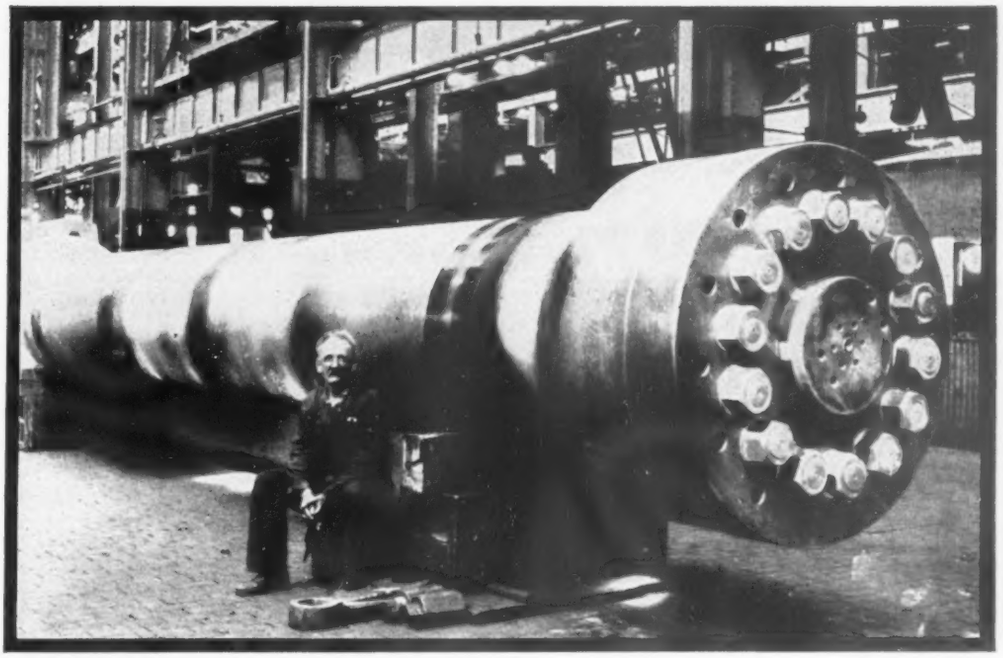
STEAM ENGINES—Troy Engine & Machine Co., Troy, Pa., manufacturer of steam engines, generators and generating sets, has issued a bulletin giving the results of an engineering survey covering six plants, directed to a comparison of economies from the use of steam engine power.

INSULATION—Alfol Insulation Co., Chrysler building, New York, is distributing a booklet indicating uses for its crumpled metal foil system of insulation, under patents of the N. V. Internationale Maatschappij, Amsterdam, Holland. Illustrations show numerous applications.

ELECTRICAL EQUIPMENT—General Electric Co., Schenectady, N. Y., among recent bulletins has issued the following: No. 1344A, single-stage centrifugal compressors, 5 to 30 horsepower; No. 1542, direct current motors; No. 1607, direct-current generators and exciters, 1½ and 2-kilowatt; No. 1546, welding electrodes and accessories; No. 1568, magnetic switches.

CIRCUIT BREAKERS—Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has issued two publications on its de-ion circuit breakers, which use a new method of arc extinction, allowing elimination of fuses. Circular 1939 gives a general description of the breakers, ratings and applications. Circular 1937 shows construction and application details of the 225-ampere breaker.

SHOVELS, CRANES—Byers Machine Co., Ravenna, O., has issued a general catalog covering its enlarged line of shovels and cranes. Treatment is unusual, an illustration of the complete machine being given first and then taken apart in succeeding pages to show its construction. Several



This pressure vessel, forged from an ingot of Chrome - Vanadium Steel, is over 32 feet long, with 24-inch bore, 9 - inch wall thickness and flange diameter of 54 inches.

6 Years' Service

At Pressure of 4,400 Lbs. Temperatures from 400° to 575° F. In Atmosphere of Corrosive Gases

FOR almost six years, the forged Chrome-Vanadium Steel pressure vessel illustrated above has been in continuous service, at pressure of 4,400 pounds per square inch, with temperatures varying from 400° F. to 575° F., in an atmosphere of corrosive gases.

Recently, the inner surface of this vessel was subjected to a thorough metallographic examination, and found to be unaltered in every respect! Similarly satisfactory performance is being rendered by many other Chrome-Vanadium Steel pressure vessels serving under severe conditions in many countries, including Europe and the Orient.

Chrome - Vanadium Steels possess excellent mechanical properties at both room and moderately elevated temperatures. They are exceptionally uniform, especially in large masses, and are adaptable to all fabricating operations. Because of these advantages, Chrome - Vanadium Steels have been widely employed for production of large ingots for conversion into forged pressure vessels and also for production of both light and heavy plate for the construction of welded units.

If you design, build or use pressure vessels for any service, our Metallurgists will gladly send you complete information on the analyses, properties and advantages of Chrome-Vanadium Steels that have given outstanding performance in pressure vessel service. Write us today.

VANADIUM CORPORATION OF AMERICA
120 BROADWAY, NEW YORK, N. Y.
PITTSBURGH — *Bridgeville, Pa.*
DETROIT — *Book Tower*

Plants at Bridgeville, Pa., and Niagara Falls, N. Y.
Research and Development Laboratories at Bridgeville, Pa.

VANCORAM

FERRO - ALLOYS of vanadium, silicon, chromium and titanium; silico-manganese, tungsten and molybdenum, produced by the Vanadium Corporation of America, are used by steel makers in the production of high - quality steels.

Chrome-Vanadium Steels
For Forged and Welded Pressure Vessels

pages are devoted to halftone reproductions of photographs of machines at work.

WELDING ROD—Bastian-Blessing Co., 240 East Ontario street, Chicago, has issued a catalog in pocket form, of its new line of welding rods and electrodes, with description of each rod and information on the proper rod for specific use. Tables for the use of the welder and welding engineer are included.

ROLLER BEARINGS—Hyatt Roller Bearing Co., Harrison, N. J., has published in observance of its fortieth anniversary a booklet presenting various types of bearings and tests to which they and their materials are subjected to obtain best results. The book contains some unusual photographic studies. Its purpose is to make clear the care taken in producing the company's bearings.

MOLYBDENUM—Climax Molybdenum Co., 295 Madison avenue, New York, has started distributon of its annual publication. *Molybdenum in* 1931. It contains an article on present varied industrial applications of this metal in the iron and steel industry; a bibliography to guide study of the metal and its uses; an account of some of the company's laboratory work in the interest of the maker and user of iron and steel products.

FURNACES—W. S. Rockwell Co., 50 Church street, New York, manufacturer of industrial heating equipment, has issued the following bulletins: No. 325, blast gates; No. 329, electric and fuel pusher type continuous furnaces; No. 331, blowing equipment and air service systems; electric convector furnaces; No. 333, belt-conveyor type continuous furnaces; No. 334, nonferrous billet heating furnace. Each is illustrated and contains data tables.

ELECTRIC SWITCHES — General Electric Co., Schenectady, N. Y., has issued four bulletins on various forms of electric switches, as follows: No. 19G, magnetic switches for alternating-current motors; No. 1565, magnetic reversing switches for alternating-current motors; No. 1587, combination magnetic switches, across-the-line starters for induction motors; No. 1588, explosion-proof magnetic switches, for hazardous locations.

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New York

NEW YORK—Larkin Structural Steel has been incorporated with $1000 capital, by L. L. Altman, 130 West Forty-second street.

NEW YORK—Colonial Metal Craft has been incorporated with $20,000 capital to manufacture metal products, by E. Gettinger, 1501 Broadway.

New Jersey

JERSEY CITY—Industrial Scrap Iron & Metal Co. Inc. has been incorporated with 100 shares no par value to conduct a scrap metal business, by Hershenstein, O'Brien & Tartalsky, Jersey City.

Pennsylvania

PHILADELPHIA—Security Elevator Co. has been incorporated with $10,000 capital to manufacture, install and repair elevators and hoisting devices, by Sarah Taylor, 7528 Rogers avenue, Highland Park, Pa.

PHILADELPHIA — Ornamental Bronze & Iron Works Inc. has been incorporated with $5000 capital to manufacture bronze, steel, aluminum and iron products, by August Yakatan, 1954 North Hollywood street, Philadelphia.

PITTSBURGH—Nesbit Engineering Corp. has been incorporated with $5000 capital to manufacture industrial machinery, by B. H. Smyers Jr., 817 Heberton avenue, Pittsburgh.

PITTSBURGH—University of Pittsburgh is considering erection of an experimental engineering shop to cost $100,000. Sketches have been submitted to members of the engineering alumni association.

WHEATLAND—Sharon Steel Products Co. has been incorporated with $10,000 capital and 100 shares no par value to manufacture pipe collars, by G. S. Morrow, 416 Arden road, Mt. Lebanon, Pa.

Ohio

CINCINNATI — Eagle-Picher Lead Co., A. E. Bendelari president, will build for its subsidiary, Eagle-Picher Mining & Smelting Co., a 3600-ton mill in the mining field near Picher, Okla., to cost $300,000, to replace a number of smaller units.

PIQUA—Piqua Handle & Mfg. Co., 1025 High street, will proceed at once to rebuild its plant after a fire. Cost about $4000.

READING—City, Selden F. High, Cincinnati, engineer, will build improvements to its waterworks immediately, including new engines and electrical generating equipment, 600 kilowatts per hour. General contract to American Iron Works Co., Oswego, N. Y.

Michigan

DETROIT—Wagner Products Co. has been incorporated with $1000 capital to manufacture automotive accessories and supplies, by Hope W. Wagner, 631 Maplehurst street, Ferndale, Mich.

Indiana

MARION—Bids will be taken soon for two centrifugal pumps to be installed in the municipal waterworks plant. John W. Moore & Son, 838 Indiana Pythian building, Indianapolis, engineers.

Illinois

CHICAGO—Roy L. Jones Steel Co., 3132 West Fifty-first street, has been incorporated with $20,000 to deal in steel and metals, by D'Ancona, Pflaum & Kohlsaat, 33 North LaSalle street.

ELGIN—Bowen & Mowat Mfg. Co. has been incorporated with $5000 capital and 150 shares no par value to manufacture heaters, by Roy R. Phillips, 602 Professional building, Elgin.

ROCK ISLAND—Girderless Ribbed Slab Corp. has been incorporated with 1500 shares no par value to erect fireproof construction, by George C. Wenger, Safety building, Rock Island.

Oklahoma

MCALESTER—Tilly Horizontal Drill Co. has been incorporated with $50,000 capital to manufacture mining drills, by J. B. Riddle.

Texas

HOUSTON—State highway department has let contract for a machine shop for repair and maintenance of highway construction equipment.

Wisconsin

EAU CLAIRE — A. M. Mattison Foundry & Pattern Works has started construction on a shop extension 40 x 60 feet.

RICHLAND CENTER — Bids will close June 15 with Guy C. Luckey, city clerk, for a 500-horsepower water tube boiler, with stoker, for the municipal light and power plant.

Dominion of Canada

BRANTFORD, ONT.—Brantford Auto Parts Ltd. has been incorporated with $50,000 capital and 500 shares no par value to manufacture automobiles and parts, by George L. Nuttal.

HULL, QUE.—E. B. Eddy & Co. Ltd., Bridge street, is considering an addition to its plant. Victor Drury, 360 St. James street West, Montreal, is president.

SOREL, QUE.—Sorel Steel Foundries Ltd. will build an addition to its plant immediately and install additional equipment. P. H. Desrosiers is manager.